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THE FAR EASTERN REVIEW

ENGINEERING FINANCE COMMERCE

In this Number:

DAYLIGHT IN MANCHURIA

By George Bronson Rea

Sakana San—The Honorable Mr. Fish

A Successful Shanghai Shipyard

Asbestos Mining in the Philippines

Planning for Huge Japanese Shipping Combination

The Wild Men of Borneo

Chinese Financial Consortium Completes Organization

Will China Recover the Chinese Eastern Railway?

Dr. Sun Yat-sen's Chinese Railway Plans

遠東時報

THE ASIATIC TRAIN-DE-LUXE

The South Manchuria Railway's Special all-American Pullman Express, which meets the Shanghai Steamer at the Wharf, Dairen Harbor



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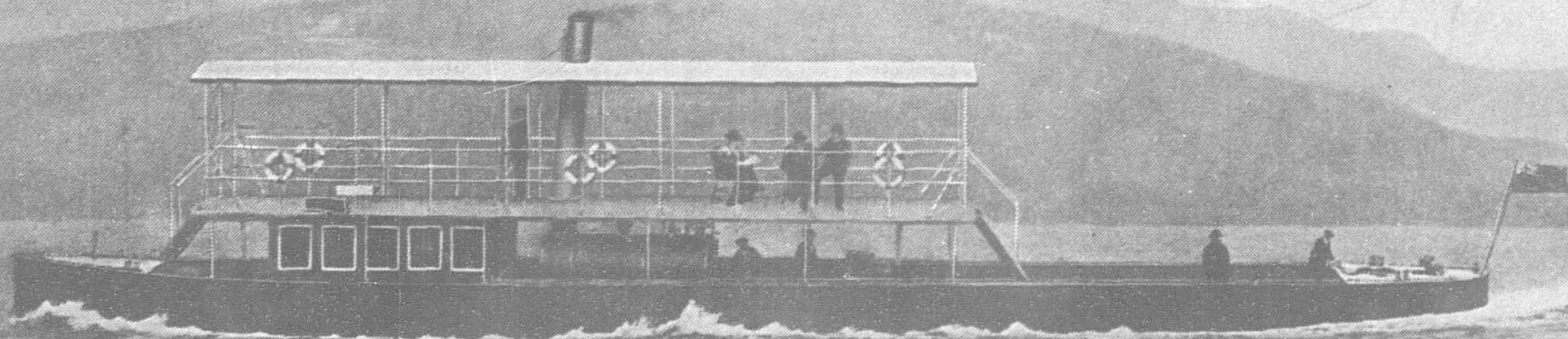
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The Far Eastern Review

ENGINEERING

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COMMERCE

VOL. XVI

SHANGHAI, NOVEMBER, 1920

No. 11

DAYLIGHT IN MANCHURIA

American Machinery, Materials and Methods Have Made Possible the Remarkable Transformation of the Former Stagnant Manchu Homeland Into the Most Prosperous and Progressive Region in Eastern Asia.

By George Bronson Rea

DR. R. Nomura's statement carries a message that all thoughtful Americans should try to understand. Let us therefore analyze what Dr. Nomura has to say; try to grasp what his statement means in terms of China's railway development, its bearing on American trade in China and the much-discussed Open Door, and its influence upon those American manufacturers who have been outspoken in their desire for a more harmonious understanding with Japan, rather crudely expressed in the much criticized phrase, "co-operation." Before the war, the average cost of constructing railways in China was about \$50,000 gold per mile. China now has 3,700 miles of state railways in operation, and, with the exception of three minor lines, all constructed from the proceeds of foreign loans. These lines are given below with their cost and the country furnishing the loan: Peking-Hankow, \$100,298,991.30, Belgium; Peking-Mukden, \$60,467,576.91, Great Britain; Tientsin-Pukow, \$99,803,208.27, Great Britain and Germany; Shanghai-Nanking, \$30,484,417.10, Great Britain; Shanghai-Hangchow-Ningpo, \$21,307,376.10, Great Britain; Peking-Suiyuan, \$26,100,381.72, Chinese; Cheng-Tai, \$21,987,806.07, Franco-Russian; Tao-Ching, \$7,286,507.07, Great Britain; Peinlo, \$13,396,160.20, Belgium; Kirin-Changchun, \$6,542,631.23, Japan; Chichow-Pinghsiang, \$49,808,850.27, Chinese (this total includes the Pinghsiang Collieries valued at

"WE ARE NOW PURCHASING OVER \$15,000,000 A YEAR IN AMERICAN PRODUCTS, AND EXPECT TO INCREASE THIS IN THE FUTURE"—DR. R. NOMURA, PRESIDENT OF THE SOUTH MANCHURIA RAILWAY COMPANY.



DR. RYUTARO NOMURA

PRESIDENT OF THE SOUTH MANCHURIA RAILWAY COMPANY
A Type of Japan's Modern Captain of Industry, who Successfully Directs the Great Railway and Industrial Enterprises in Manchuria Capitalized at \$200,000,000, and Valued at \$700,000,000. Dr. Nomura is a self-made man, who has worked his way up from the lowest rungs of the engineering ladder to the most important railway position in Asia. Since 1896, he has been connected with the Imperial Government Railway administration of Japan, serving as Chief Engineer and Vice-Minister.

\$45,000,000); Canton-Kowloon, \$15,520,617.81, Great Britain; Canton-Samshui, \$3,306,240.10, American-Redeemed; Changchow-Amoy, \$2,643,031.27, Chinese. Total Valuation, \$413,953,795.42.

From this total, the lines built by purely Chinese capital may be deducted, viz.: Peking-Suiyuan, \$26,100,381; Chuchow-Pinghsiang, \$49,808,850 (including valuation of coal mines) and the Changchow-Amoy, \$2,643,031, a total of \$78,552,262. Deducting this from the total valuation and capitalization of the government system, it leaves \$335,401,533, as the total of foreign capital invested in these loan-built lines. At the time these loans were issued, the silver exchange was very low, averaging \$2.50 to the Gold dollar, which gives us a rough gold valuation of the loan-built lines, of \$135,000,000.

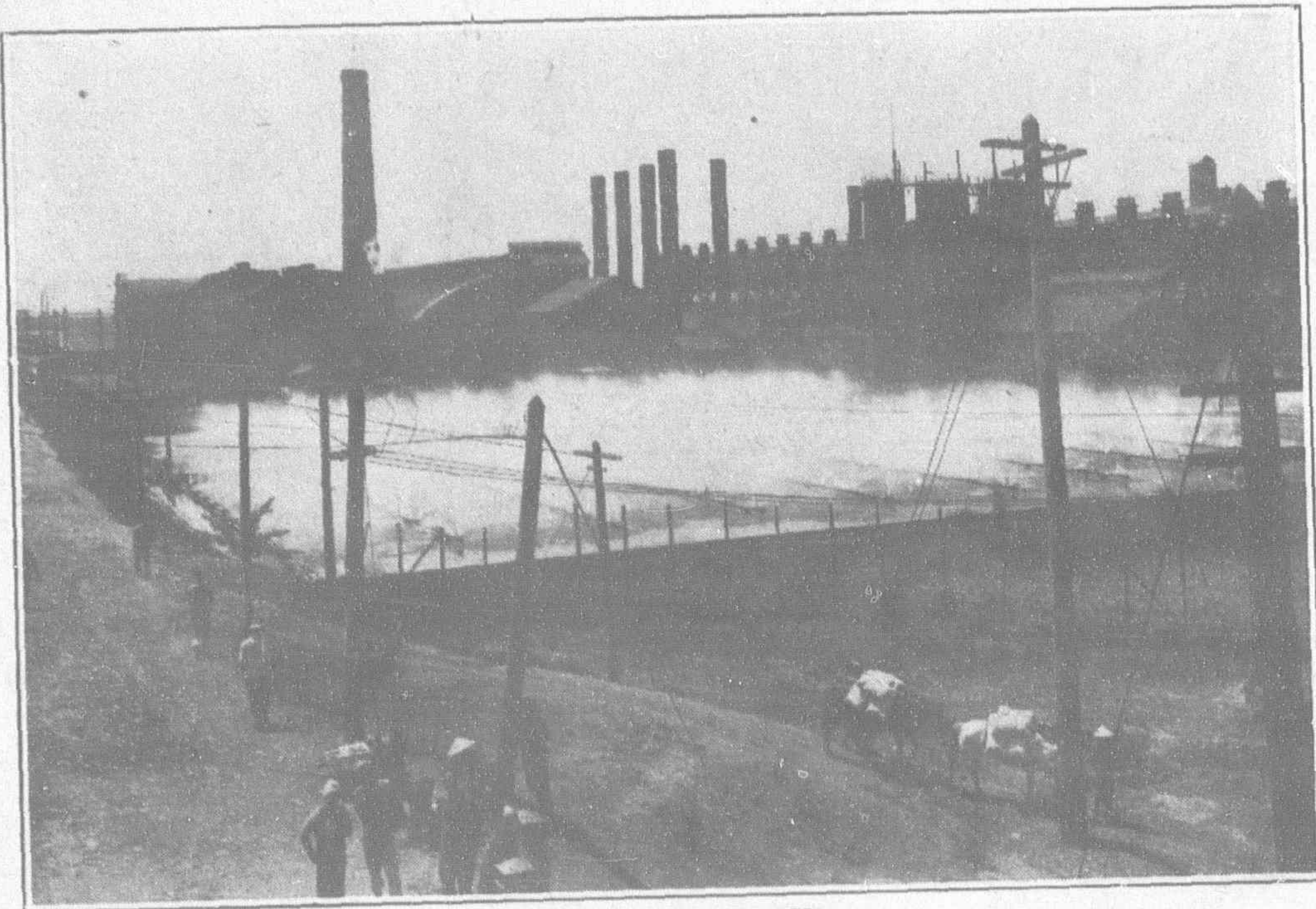
The actual construction cost of these government lines is given at \$366,111,303, and, after deducting the costs of the Peking-Suiyuan, Chuchow-Pinghsiang and the Changchow-Amoy lines, (\$32,244,995) we get \$333,856,408 as the cost for constructing the entire system of Chinese loan-built lines, which, at the same rate of exchange, is equivalent to \$133,500,000 gold. It can be fairly estimated that fifty per cent. of the loan total was expended in the purchase of materials in the countries supplying the funds, or about \$67,000,000. This, therefore, would roughly represent the value of the Chinese railway market for construction and maintenance materials up to December, 1918.

THE FUSHUN COLLIERY OPERATED BY THE SOUTH MANCHURIA RAILWAY

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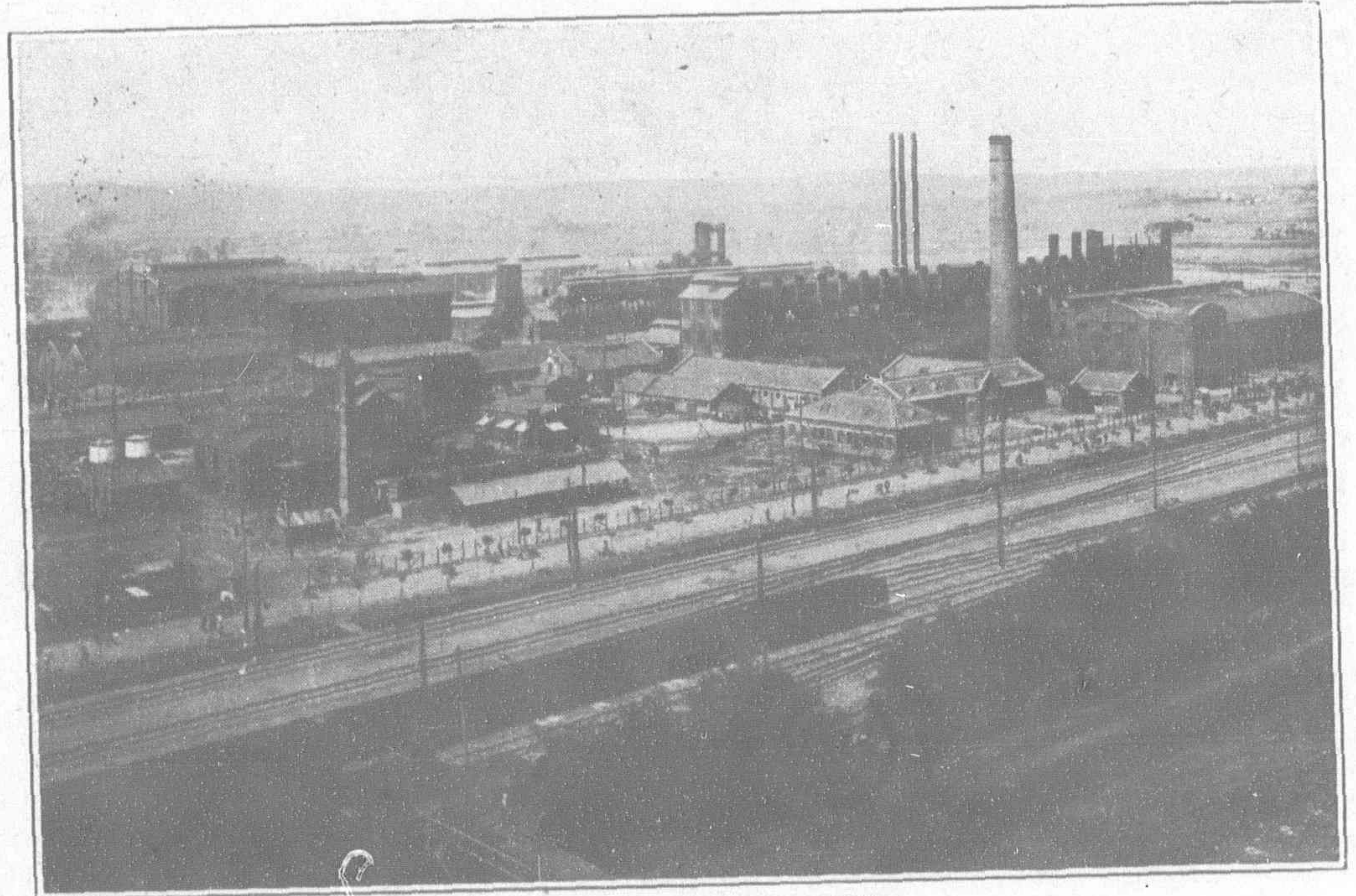
THE FAR EASTERN REVIEW

November, 1920

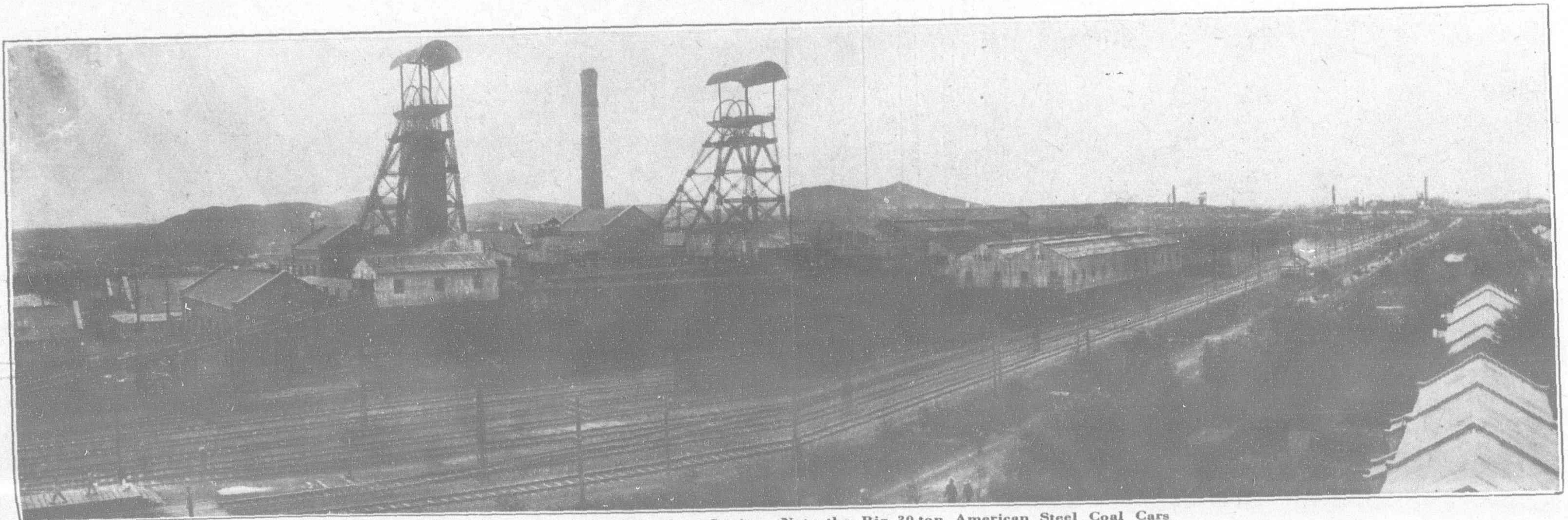


COOLING APPARATUS

The Great Mond Gas Producing Plant—One of the Largest Installations of its kind in the World—Operated by the Fushun Coal Mining Department of the South Manchuria Railway Company



A GOOD GENERAL VIEW



The Togo Pit and Coal Loading Station—Note the Big 30-ton American Steel Coal Cars

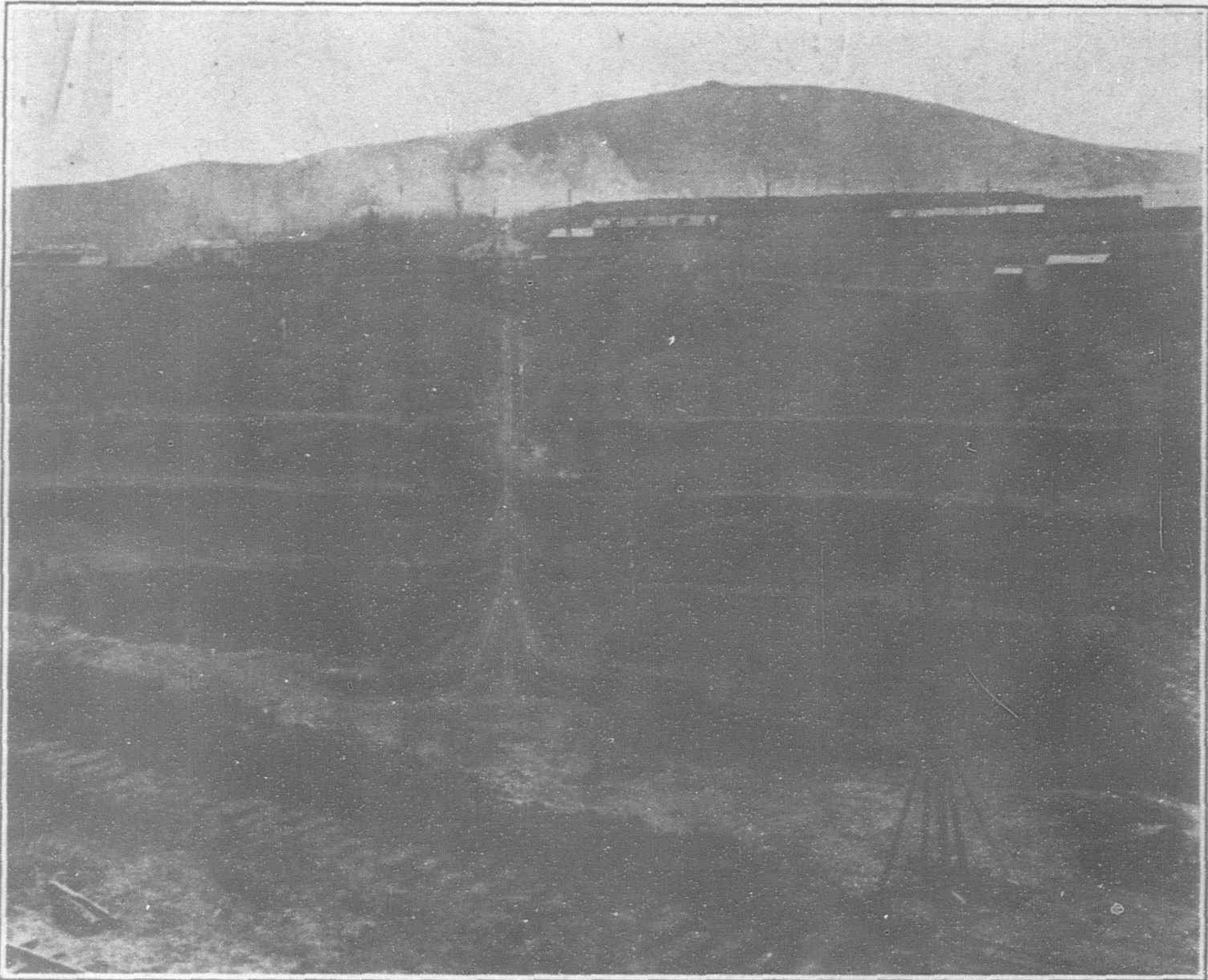
On none of these loan-built railways was American material permitted to compete, except in very rare and insignificant cases. It may be added, however, that the purely Chinese financed railways, such as the Peking-Suiyuan, Chuchow-Pinghsiang and the Changchow-Amoy, bought at least half their requirements in America. They represent a capitalization of \$15,000,000 gold, of which \$9,000,000 went for materials, and about half, or \$4,500,000, to American manufacturers. For the purpose of this argument, it may be accepted that American manufacturers furnished materials to the extent of double this amount to the various Chinese railways during the past fifteen years, a conservative statement of the situation existing up to the outbreak of the war. This total has been materially increased during the past three years, due entirely to the inability of the European nations who supplied the loans to fill the orders for materials. This situation is, however, abnormal. As these nations recover their economic position, the provisions of the various loan agreements will again prevail, and China will have to purchase her railway requirements for these lines during the unexpired life of the contracts in the countries which furnished the loans. The Door that was opened to American manufacturers by reason of the war, will automatically close, and the market for railway materials be restricted to the three purely Chinese lines, none of which are free agents for the placing of orders.

When I read the statement of Dr. Nomura (published in a special number of the *Yomiuri*, of Tokyo) that his company was purchasing over \$15,000,000 gold a year of American products, I realized that this was equivalent to a Chinese railway loan of \$30,000,000, and if it had extended over a period of ten years, the total would be \$150,000,000; which, translated into loan terms, meant an investment equal to \$300,000,000 of American money in Chinese railways, or double the entire valuation of the Chinese government railways system. To make certain of this statement, I requested Mr. Inouye, the Governor of the Bank of Japan, to obtain from the railway company the exact official figures of the amounts expended for American materials since the line came into the possession of Japan. The following official report has been compiled from the books of the South Manchuria Railway Company and forwarded through the Governor of the Bank of Japan for the purposes of this article:

VALUE OF PURCHASES OF MATERIAL MADE BY SOUTH MANCHURIA RAILWAY. 1907/8 UNTIL AUGUST 1, 1920.

Administrative Year	Material imported direct from the U. S.	Total of Material bought by the Company.	Percentage of direct imports from the U. S.
	Yen	Yen	%
1907/8	18,917,580.93	28,430,902.82	67
1908/9	959,321.17	6,350,381.10	15
1909/10	642,723.57	12,995,215.52	5
1910/11	582,815.38	11,749,425.44	5

VALUE OF PURCHASES OF MATERIAL MADE BY SOUTH MANCHURIA RAILWAY. 1907/8 UNTIL AUGUST 1, 1920.			
Administrative Year	Material imported direct from the U. S.	Total of Material bought by the Company.	Percentage of direct imports from the U. S.
	Yen	Yen	%
1911/12	865,005.34	9,290,849.11	9
1912/13	548,711.40	5,255,170.91	10
1913/14	946,601.21	9,112,582.05	10
1914/15	781,836.69	5,694,479.55	14
1915/16	2,275,230.48	9,629,702.81	24
1916/17	3,099,585.54	18,036,199.53	17
1917/18	13,775,597.86	39,650,411.70	35
1918/19	26,460,773.36	70,165,326.10	38
1919/20	16,152,885.07	50,544,421.97	32
1920 (4 months only)	1,805,440.19	7,793,782.73	23
Grand Total	87,814,108.19	284,703,851.43	31



THE FUSHUN COAL MINE
One of the Largest Open Cut mines in the World, Operated by the South Manchuria Railway Company

The figures given above are only those which can be clearly distinguished as direct importations by the company from the United States. Large quantities of American materials have been purchased locally and in China and Japan, or imported through Japanese and other commission firms, which does not show on the books of the Railway Company as proceeding from America. A conservative estimate of the value of American materials sold to the South Manchuria Railway in the past fourteen years is Yen 100,000,000, or \$50,000,000 gold. To this, must be added the immense purchase from America by private Japanese concerns, like Mitsui, Okura, Suzuki, and others, for the equipment of iron and steel foundries, mining, oil, flour and other indus-

trial enterprises located within the railway zone. The exact figures are not available, but experts estimate this as being in the neighborhood of Yen 50,000,000, (\$25,000,000) or a grand total of \$75,000,000 of American engineering products sold to the South Manchuria Railway Company and its allied concerns within the last fourteen years, or \$8,000,000 more than the entire Chinese government railway market in the same length of time. Reduced to loan terms, this represents an investment of \$150,000,000 of American capital in Chinese government railway bonds, or approximately equal to the total pre-war valuation and capitalization of the loan built system.

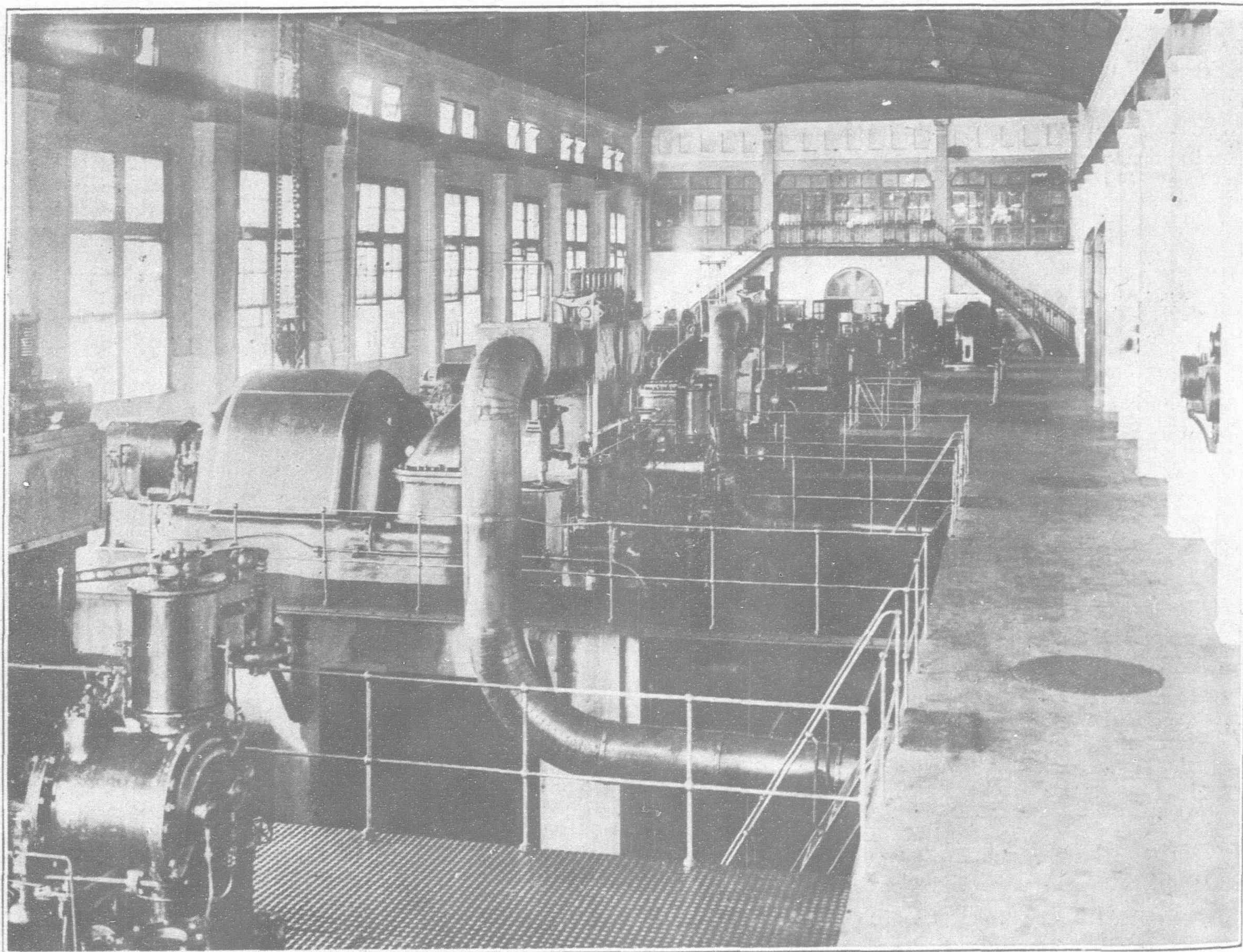
The annual report of the Chinese government railways gives the following returns of rolling stock up to December 31, 1918, on the entire 3,700 miles of open lines: 638 locomotives, of which 130 are for shunting purposes; 1,332 passenger cars; and 10,594 freight cars with a total carrying capacity of 241,050 tons, an average of 22 tons per car. The Japanese managed South Manchuria Railway, with only 700 miles of lines, operates 328 locomotives, over 300 of which have been purchased in America; 298 passenger coaches, of which over 100 were imported direct from the United States, and the rest built from American material to American specifications at their own workshops; and 4,339 thirty-ton American type

freight cars, of which over 1,500 were purchased direct from American manufacturers. In addition, the South Manchuria Railway owns and operates 45 miles of heavy electric railway, using eight 45-ton General Electric locomotives, the first and only electric railway service in Eastern Asia. Nearly all of this equipment has been purchased in America, and what is manufactured on the ground in the company's workshops is made to American specification.

These figures speak for themselves. They tell us that the South Manchuria Railway is, and has been, the only railway in China where American materials have enjoyed equal opportunity; the only door that was wide open for Americans to enter and compete with the manufacturers of Europe on an even basis, without the payment of "squeezes" or subjection to the petty discriminations that have prevailed in other parts of China. The door to equal opportunity for American manufacturers of railway material has been closed on all the loan-built lines by the operation of the

in Manchuria means to American manufacturers, the following comparison taken from the official figures will be highly interesting and illuminating. The total operating revenues of the 3,700 miles of Chinese government railways for 1916, was \$62,761,720, against operating expenses of \$28,842,277. After deducting the net income debits from the net income the lines showed a surplus of \$8,619,531.

Compare the above with the latest official figures of the 700 miles of Japanese managed South Manchuria Railway and its subsidiary enterprises. "In spite of the financial commitments assumed by the Company in fulfilment of the administrative duties prescribed by the Japanese government, it has been able to derive a fair amount of profit from its enterprises. The gross revenue in 1907 amounted to Yen 12,540,000, the net profit to Yen 2,020,000. The figures for 1919-20, were Yen 153,000,000 and Yen 24,370,000 respectively, the increase in the case of both items being twelve-fold. The early dividends of 6 per cent. have been increased to 10 per cent. The original cost of the Company's properties was



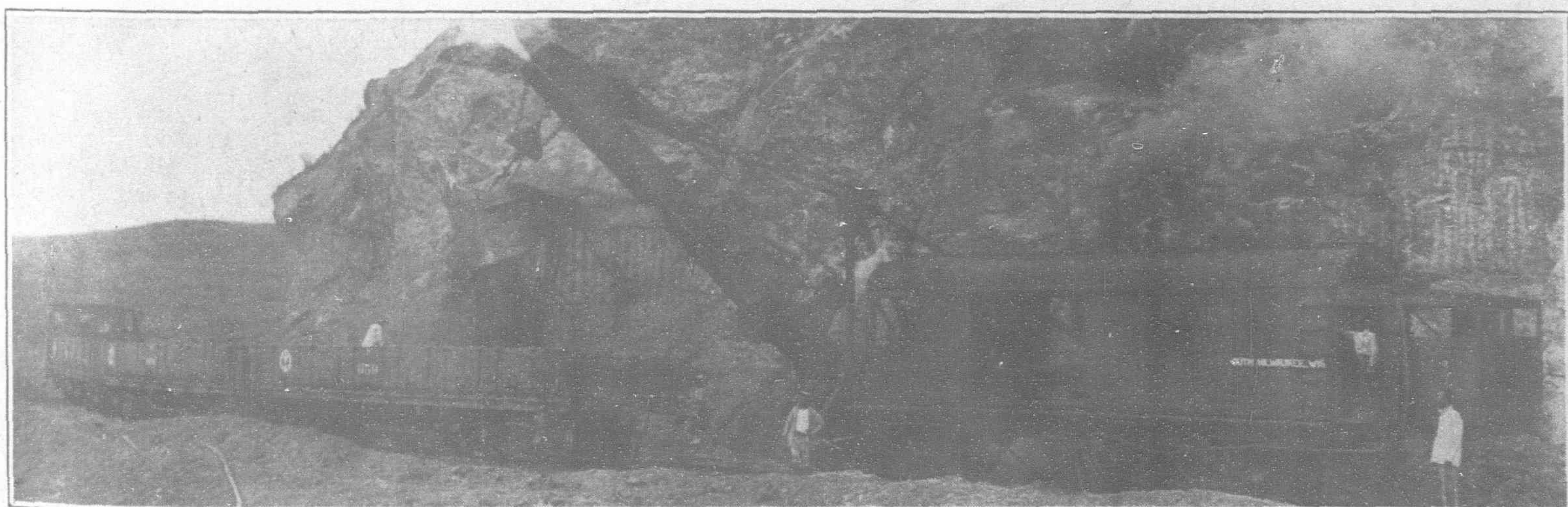
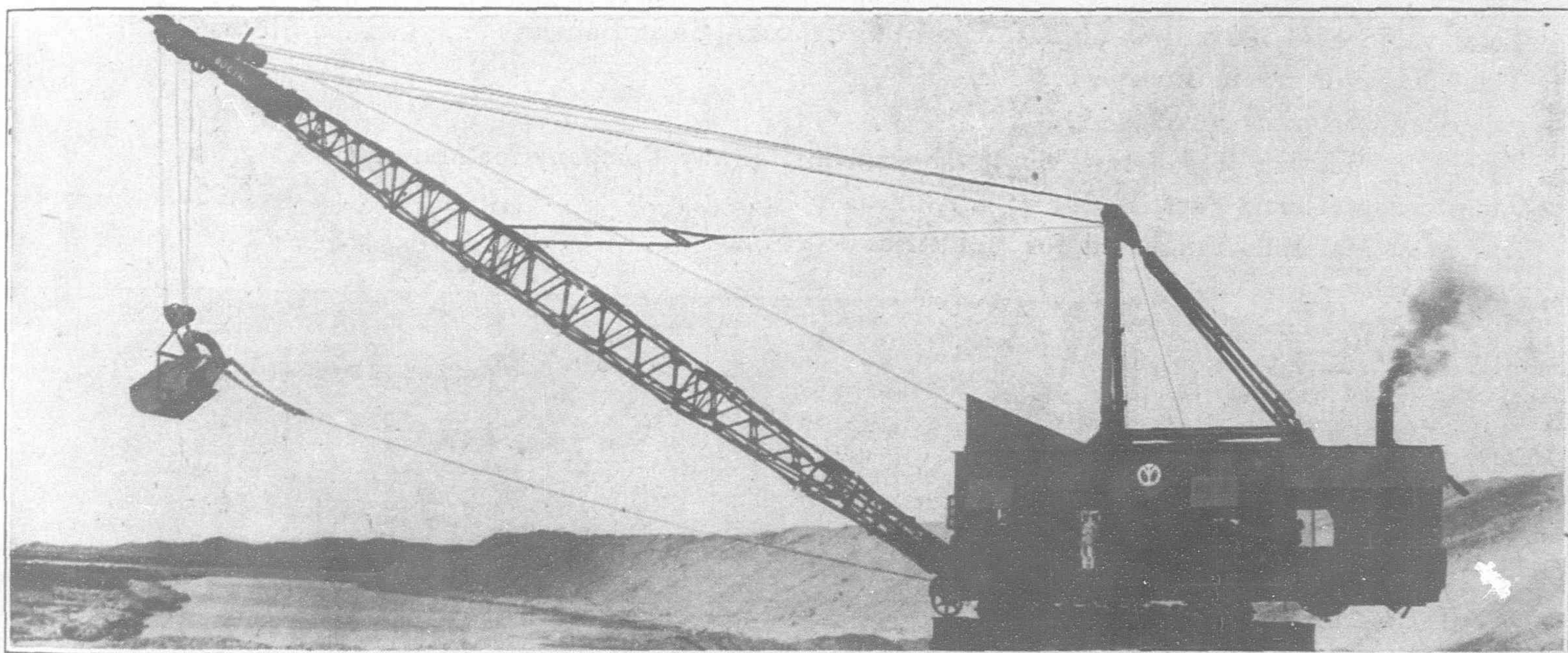
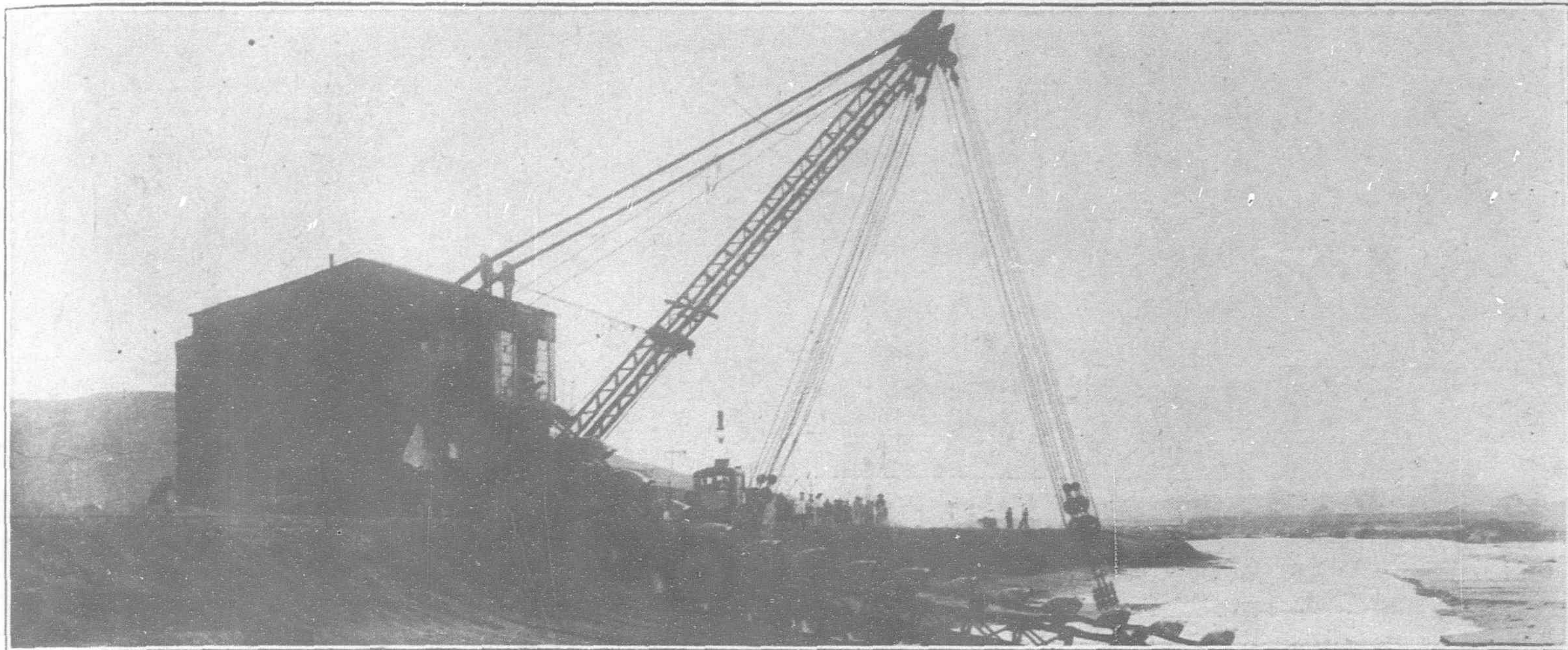
The Electrical Generating Room of the Great Mond Gas Plant at the Fushun Coal Mines of the South Manchuria Railway Company

clause conceding preference to the materials of the country furnishing the loan. As we return gradually to normal conditions, the "war business" that has come to us through the inability of the lending nations to supply the requirements of these lines will have to be surrendered; and, as none of these lines will come under the scope of the new international Consortium, the door may again be closed to American manufacturers on all existing Chinese lines, excepting the three lines under purely Chinese management.

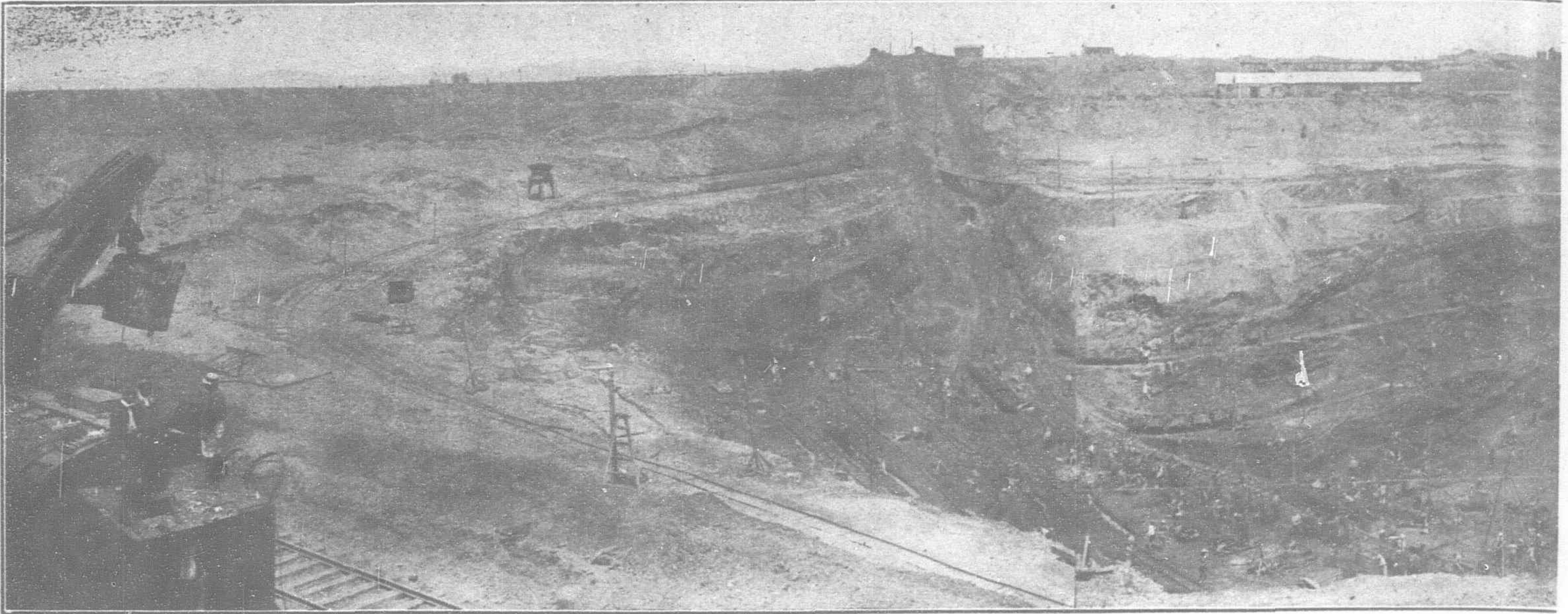
To understand thoroughly just what the railway supply market

roughly Yen 500,000,000, but at a modest valuation they are now worth Yen 1,400,000,000, a striking proof of the Company's financial position." At normal exchange, the silver dollar and the yen may be said to be on a par, so the above comparison tells us that the 700 miles of Japanese lines and its enterprises in Manchuria, is not only twice as profitable as the entire 3,700 mile system of the Chinese government, but the one market where American railway materials have a chance to compete. It will be noted that the American purchases for the South Manchuria Railway are

MODERN AMERICAN METHODS IN MANCHURIA



One of the secrets of the success of the South Manchuria Railway Company is seen in the above illustrations of the huge Bucyrus Steam Shovels and Excavators, doing the work that in other parts of China is still performed by coolies with their ridiculously small baskets and trowel-like shovels. There are seven of these Bucyrus Steam Shovels at work along the line of the South Manchuria Railway and several of the sand excavators for supplying the huge demands of the Fushun Coal Mines.



THE OPEN CAST COAL MINE,

only 31 per cent. of the total of Yen 284,000,000 (\$142,000,000) expended for materials. It is well to let these figures soak into the mind.

miles of Chinese controlled lines under honest and capable management should be at least five times as great, or \$60,000,000 gold instead of \$8,000,000 silver, as is now the case.

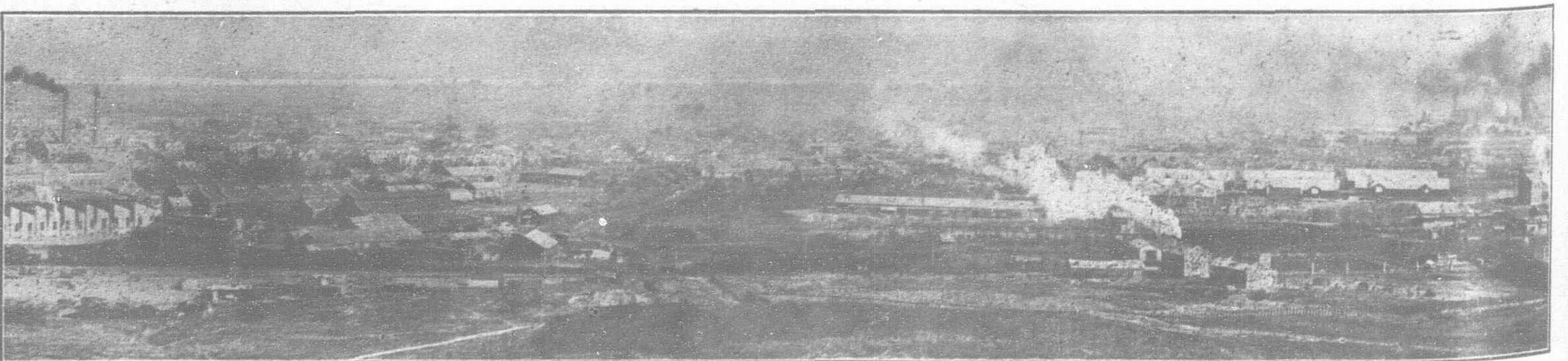
Total value of 3,700 miles, Chinese Government Loan Built Railways	\$135,000,000
Total Expenditure in Europe for Materials	67,500,000
American Materials Purchased.. .. .	nil
Total Expenditure of Japanese South Manchuria Railway Company for Materials	142,000,000
American Materials Purchased.. .. .	50,000,000
American Materials Purchased for Industries	25,000,000

These figures prove that the American people have been systematically misled by half informed journalists and officials concerning the operation of the Open Door in Manchuria. If these figures mean anything at all, they mean that all our ideas on this subject must be reversed. They tell us that the only real Open Door in the whole length and breadth of China for the supply of railway and engineering materials, exists exclusively in Manchuria. The above figures also provide an illuminating advertisement of the possibilities of honest, efficient management and operation of railway enterprises in China. If the 700 miles of Japanese controlled lines with their subsidiary enterprises show a profit of Yen 24,000,000 (\$12,000,000), the profits from the 3,700



Coke Oven and Sulphuric Acid Factory, Fushun, Manchuria

The South Manchuria Railway has not once called upon Americans to advance funds to finance one of these orders for materials. Our asset has been good-will and friendship. All that Japan has sought in return has been our trust, confidence and friendly co-



The Colliery Towns of Chienchinchai, Manchuria



FUSHUN COLLIERY, MANCHURIA

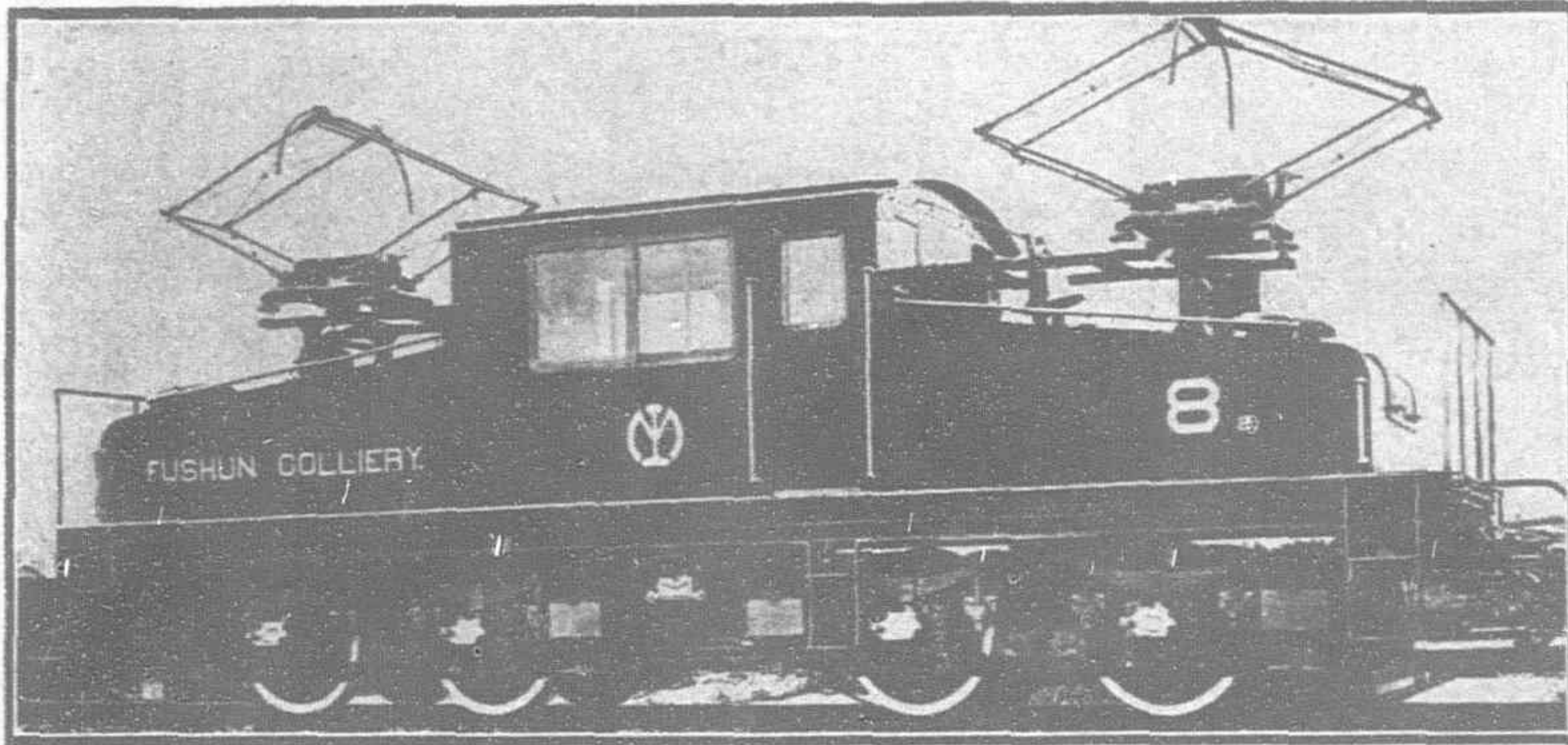
operation. How have we rewarded our good friend and customer? From the time that Japan wrung from Russia her right to exist and obtained guarantees that the territory of China would never again be employed as a base for an attack upon her independence, American diplomacy, official and unofficial, has concentrated upon weakening her position in Manchuria and handing her over again, bound hand and foot, to the vengeance of her arch enemy. Since the day that the late Willard Straight, then Consul General at Mukden, entered into negotiations with Tang Shao-yi for the establishment of a Manchurian Bank, down through all the subsequent efforts of American diplomats to the recent Consortium negotiations, American diplomacy has been centered upon the preservation of China's sovereignty over a part of her territory that she had willfully and treacherously surrendered to Russia for the sole purpose of revenging herself upon Japan. Americans have clung to an ideal, but instead of laying down the law to the real culprit, the burly, bragging, bully of Asia, they have picked on the under dog, on the little nation whose very existence depended upon maintaining her precarious foothold in Southern Manchuria, so long as Russia remained in the north with Harbin as the Far Eastern military capital of her Transbaikalian and Amur regions. Once only have we tried to undermine the Russian position in Manchuria, through the Chinchow-Aigun railway, and the lesson we received at that time told us that all the other nations

were aligned against us. Since then, we have continued to nag Japan in the south, trying to give effect to our one-sided ideas of maintaining the sovereignty and integrity of China, while ignoring the similar position of Russia in the north. Never, in the long course of human history, has the world witnessed such an instance of misdirected diplomacy to save a corrupt and intriguing government from the consequences of its own folly.

Notwithstanding this rather discourteous treatment, Japan comes to us and says, in effect "if you distrust me and my motives in Manchuria, work with me, cooperate with me, and together we will develop the great natural resources of this region. Through commercial partnerships we will learn to understand each other better, and our association will be a guarantee to China and the world that China's interests will be safeguarded and advanced." Americans have turned a deaf ear. They do not understand. Only a few broad-minded and far-seeing men like Judge Elbert H. Gary, head of the Steel Corporation, Mr. C. M. Muchnic, of the American Locomotive Company, Mr. C. A. Coffin, head of the General Electric Company, the heads of the Westinghouse and Western Electric concerns, Mr. Frank H. Vanderlip and others, realize what this friendly cooperation has meant to American industry and trade in blazing the way for our materials and specifications in the Far East. Other equally important manufacturers and financiers, can see only the alluring prospects held out in the



Oyama Pit, Fushun Colliery, Manchuria



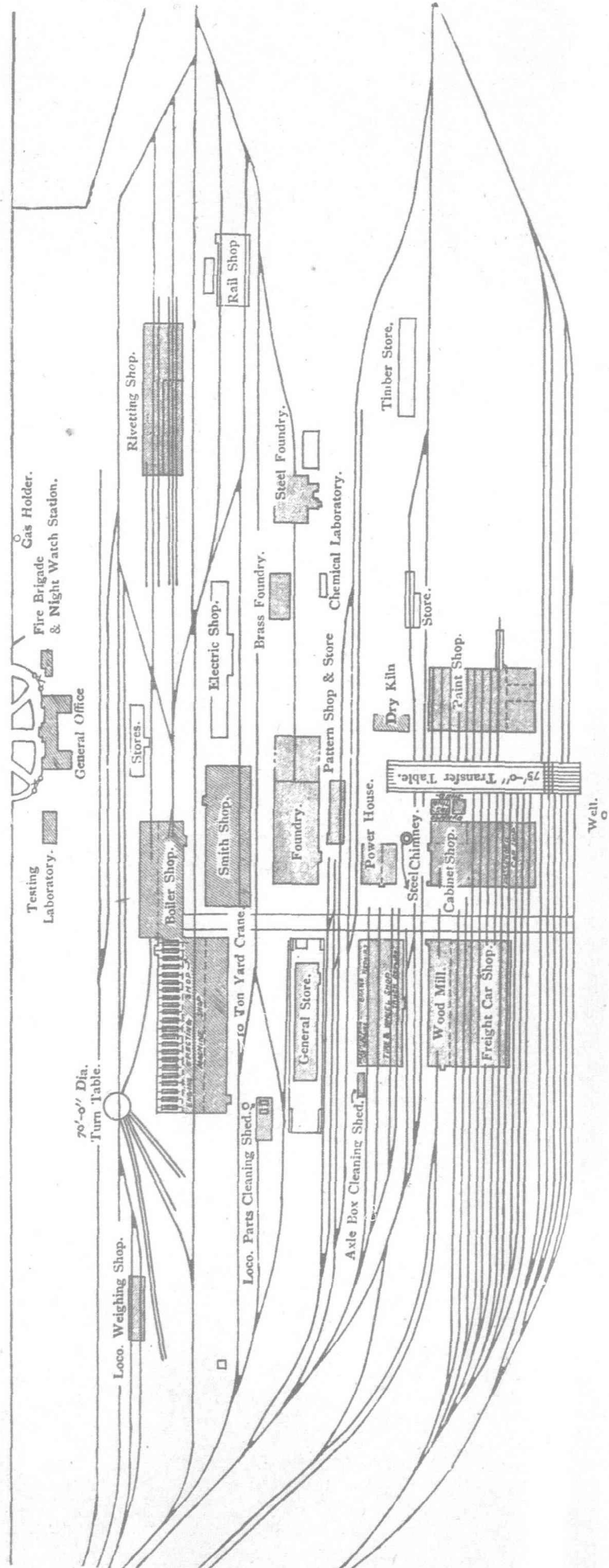
Fifty Ton Electric Locomotive at Fushun Colliery

raising of loans to finance Chinese railway construction. They fail to realize that until the Consortium gets down to work, the door to American railway activity in China is locked and barred. There is no place in all China where American capital can construct a railway without infringing upon the rights of other Powers, a condition precipitated by the diplomacy of the present administration.

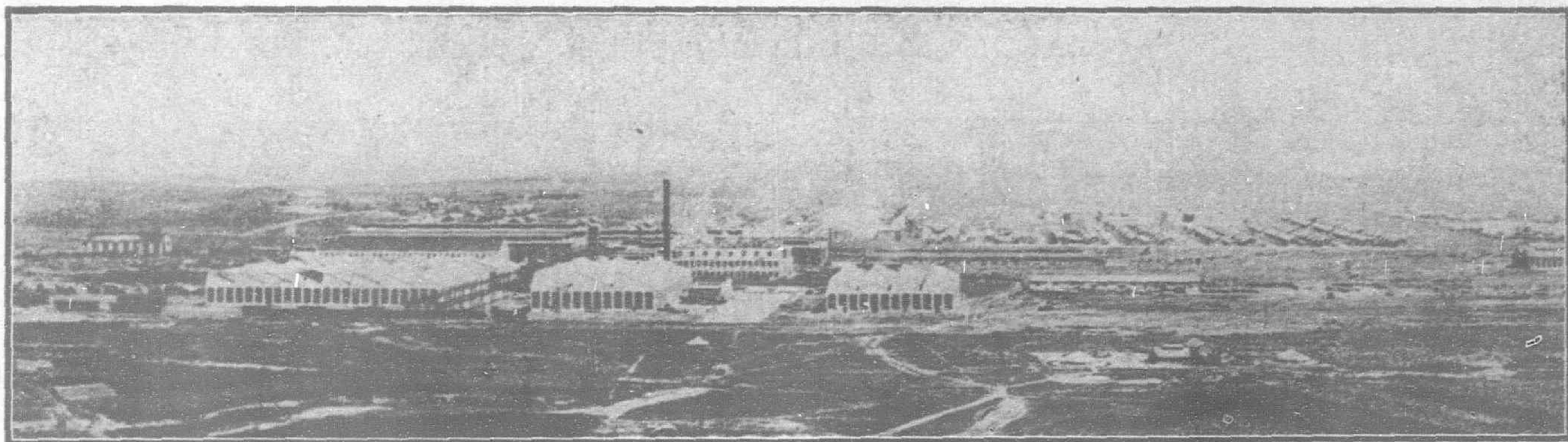
These Americans seem to overlook the important fact that the war is over, that we are rapidly drifting back to normal times and will soon have to meet the full force of European competition in the supply of China's railway requirements, with the door closed once more against us on all the loan-built lines. Our railway supply market in China will then be restricted to such insignificant construction as may be undertaken with Chinese capital, and to our participation in the business that will be developed under the Consortium. Here our manufacturers will have to compete with those of Great Britain, France, Japan, perhaps Belgium, and with preference given to materials manufactured in China. Unless there is a distinct understanding that each nation in the Consortium will receive its proportionate share of the orders for railway materials for the construction and equipment of these new lines, many American manufacturers will be frozen out. They cannot compete. This is a very conservative statement of facts, one that we challenge the Department of Commerce to refute. In this case, Manchuria will continue to be the best railway market for our manufacturers. I say, "in this case," merely to emphasize the situation and challenge some of the official Chinese boosters to answer it. It should read "in any case," as the development of Manchuria will remain outside the scope of the Consortium. Japan has several hundred more miles of railway to construct in this province, and the South Manchuria Railway Company has increased its capital for the purpose of proceeding with this new development. Japan has sufficient capital to undertake the major part of this construction and there are many private Japanese concerns who will follow with their industrial plants. The market for machinery will be there, to the same extent that it has been in the past ten years, a market as potential in its greatness as the whole of China, under its present system of government.

The development of Manchuria is still in its infancy. The ground has hardly been scratched. There await wonderful opportunities for American capital to cooperate with Japan and China in the development of these vast natural resources. Japan has evidenced her good intentions and given proof of her friendship for America and China by entering the Consortium on an equal footing with the other nations, thus providing a guarantee to the Four Great Powers for the safety of investments in this territory. This single outstanding fact is sufficient evidence that China's interests will be adequately safeguarded, and, if Chinese capital desires to participate in the benefits of this development, the door stands wide open for safe and profitable investment in a three-cornered partnership under guarantees of a square deal such as do not prevail in any other section of the unhappy Republic. That Japan is desirous of having Americans cooperate with her in Manchuria is attested to by the highest authority. In the recent special Japan-America number of the *Yomiuri*, Dr. R. Nomura, President of the South Manchuria Railway, made the following enlightening appeal to the members of the visiting delegation of American Congressmen:

"In Manchuria the open-door policy as repeatedly proclaimed by the Japanese government is strictly observed, and Japan has



Ground Plan of Shakako Workshops



Bird's Eye View of Shakako Workshops and Colony

never attempted to monopolize interests in Manchuria. Under proper arrangements, I believe there are ample fields for American-Japanese co-operation in Manchuria.

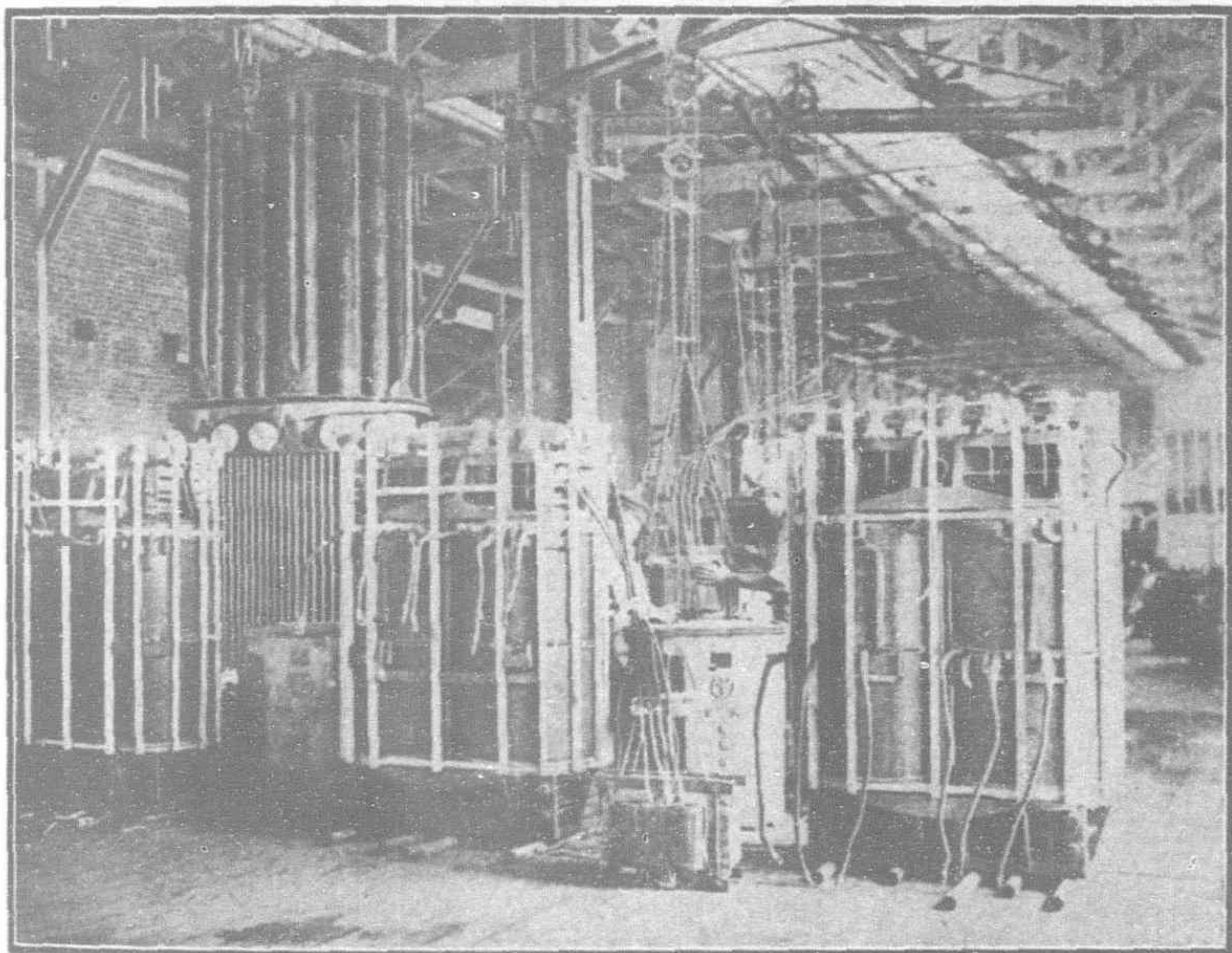
"Manchuria possesses rich natural resources. Soya beans which have recently come into international demand are largely produced in Manchuria. Kaoliang and lumber of Manchuria are also worthy of note. Industrially Manchuria has a promising future. The Fushun Coal mines, containing 1,200 million tons of coal, and the Shinchu Coal mines of almost equal magnitude will be able to supply abundant coal at low prices. Iron, equally important as coal as a material for industry, can be mined in the vicinity of Anshan in unlimited quantities. Furthermore Manchuria is favorably situated to obtain the supply of low priced Chinese coolies. Manchuria, with all these potential resources and wealth is, in my opinion, a fitting field of activity for our American

what position will be commanded by the South Manchuria Railway when the potent wealth of Manchuria is utilized and Siberia, the treasure land to the north of Manchuria, is exploited.

"Our company has enjoyed unbroken and intimate relations with the United States ever since its organization, and our present development is due largely to the efficiency of American products. It is no exaggeration that all the machinery and materials for the construction and operation of our railway system and other enterprises have been supplied by the United States. Not only has America supplied us with Pullman cars, 205 locomotives, more than 1,600 passenger and freight cars, 53,000 tons of rails and an enormous amount of other materials necessary for the operation of railway, but all the machinery for the Fushun Coal mines, the Anshan Steel Works, the gas plant, electric plants, building materials and even office utensils have been purchased from the United States. The company has been purchasing every year more than 30,000,000 yen of American products, and the amount of our purchases is expected to increase largely in future, as our plans for development demand more of all sorts of machinery and materials. It is American machinery and materials that have largely contributed to make the present development of Manchuria possible. The future of Manchuria, therefore, depends upon American products.

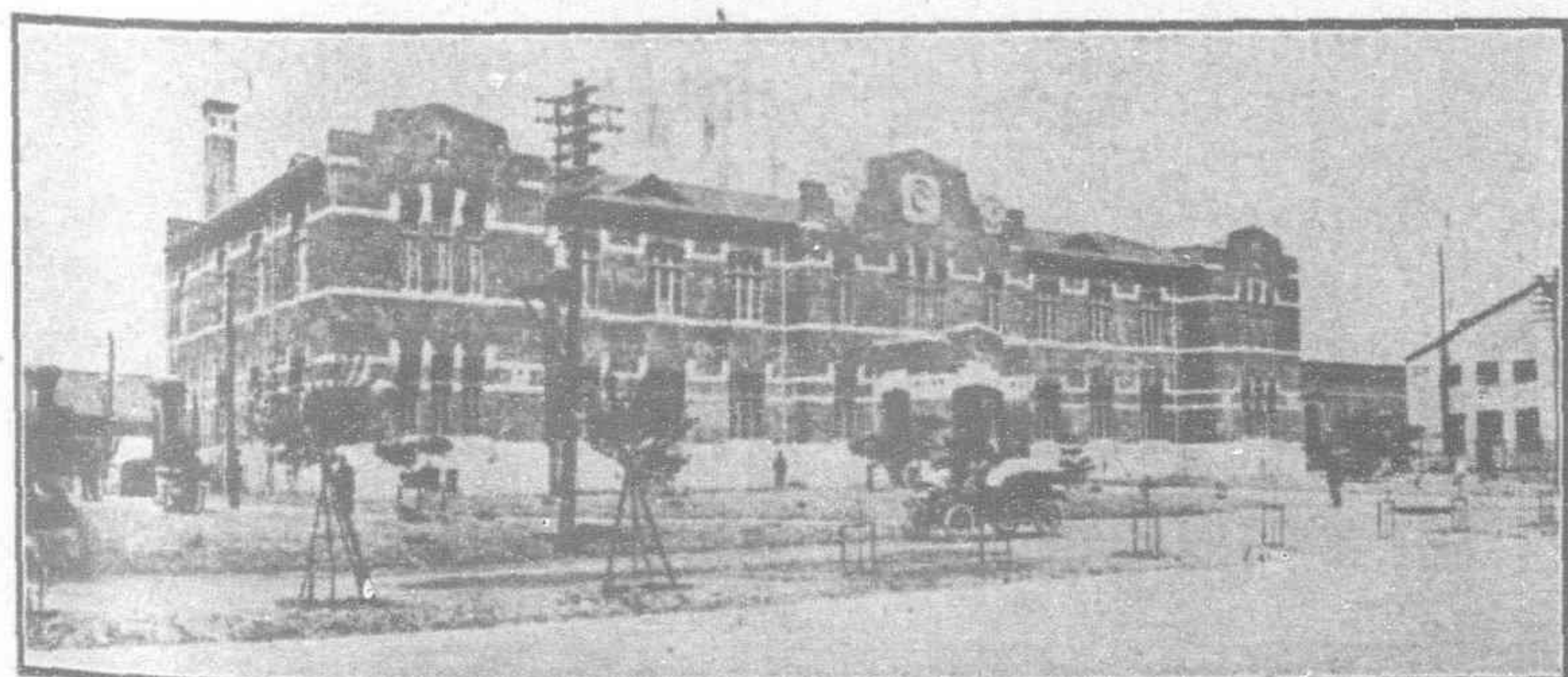
"In the management and operation of our railway, we have adopted the American system, and since our organization we have been proving the superiority of the American engineering arts and the economic advantage of the American system. We are gratified to realize that we have introduced and have always been in favor of American products and systems."

This is not propaganda designed to mislead. In the most modest terms, it reveals for the first time some inkling of the vast purchases made by the South Manchuria Railway Company in the United States, at a time when the patience of Japan must have been strained to the breaking point through American attempts to undermine her position in Manchuria, discredit her throughout China, and profit by a boycott against her trade that was undeniably traceable to the errors of American diplomacy at Paris, and to the efforts of defeated and discredited advisers who, to cover their incompetency, began to yap for war with Japan. These figures reveal that Japan's silent friendship for her great and good friend who led her out from the seclusion of centuries and stood by her in sympathy while she fought her way to the front ranks of the world's great powers, has been expressed in terms of

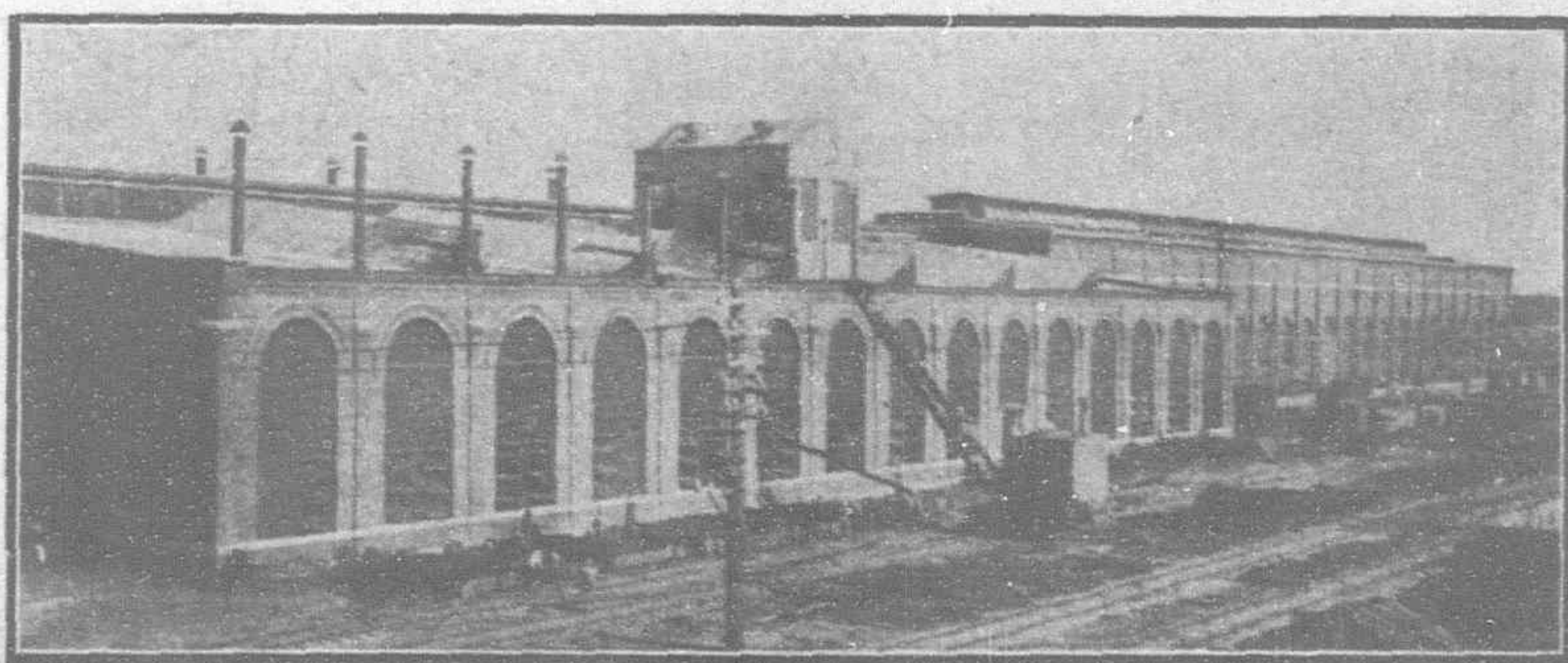


Assembling Transformers in the Electrical Department

friends, who possess enormous capital for investment, superior engineering skill and energetic, enterprising spirits. Our company has been established for the purpose of bringing the rich resources of Manchuria to the world, and has been working toward that end. I leave it to the able judgment of our friends to foresee

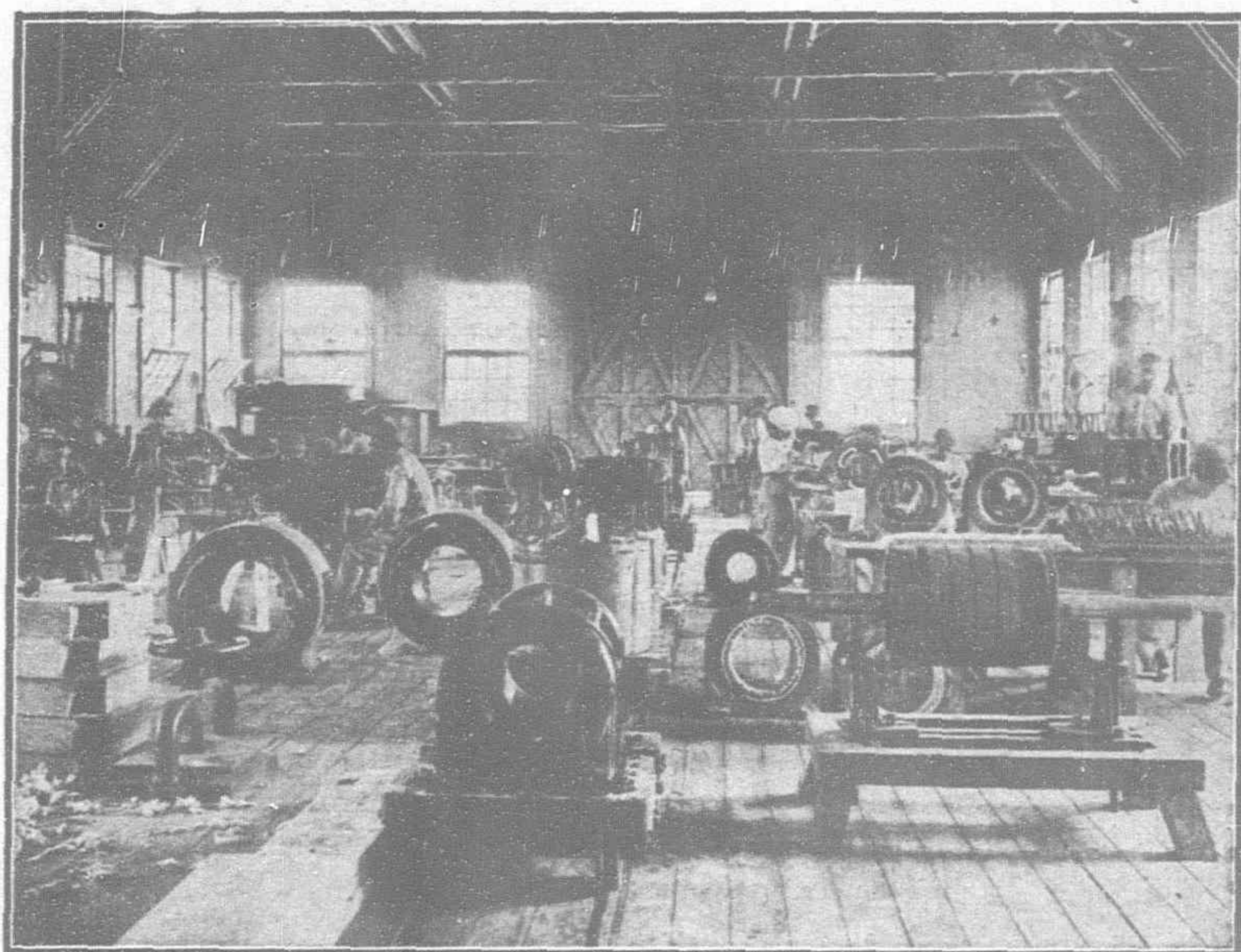


Main Office, Shakako Workshops

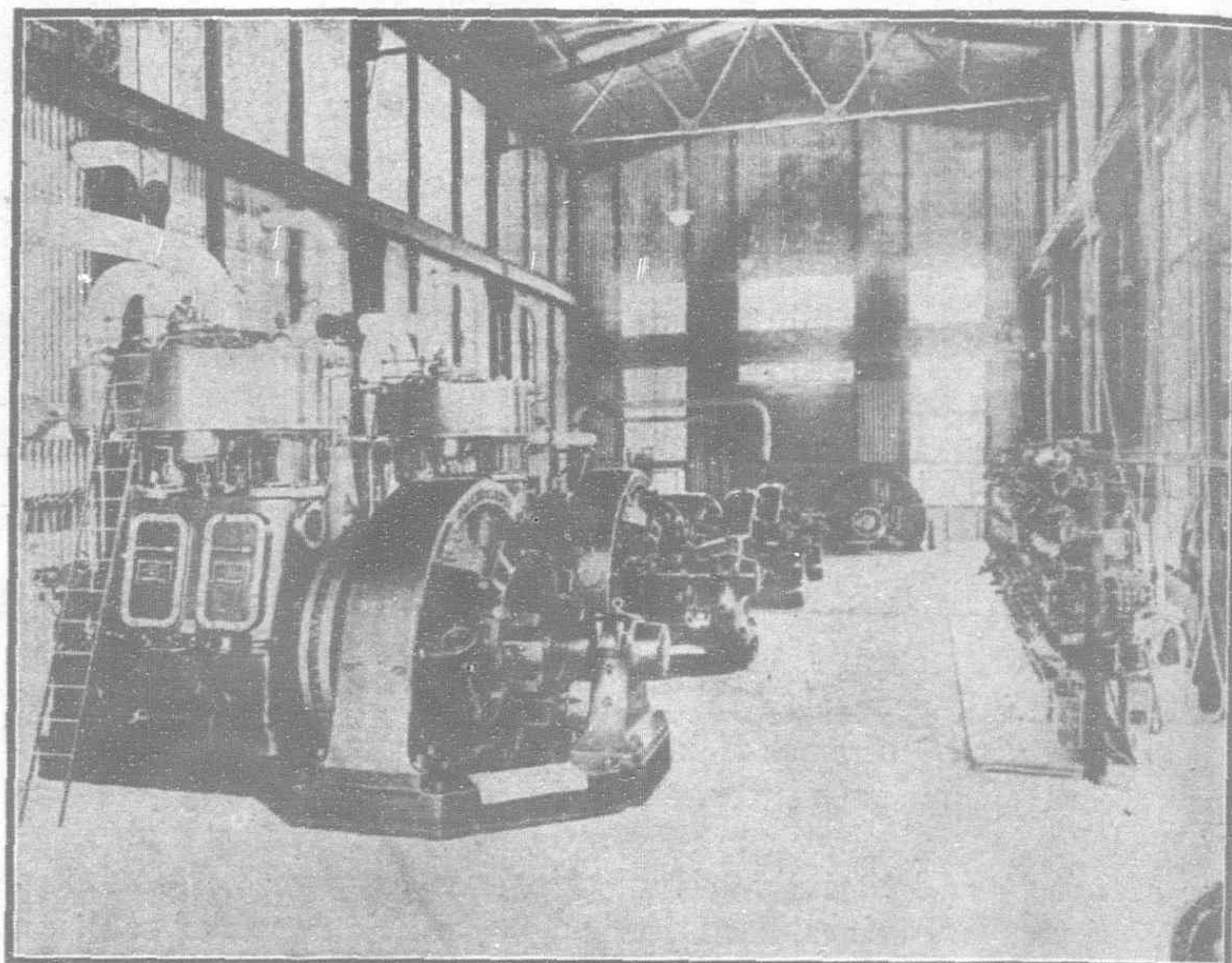


Boiler Shop

THE GREAT MODERN CAR AND LOCOMOTIVE



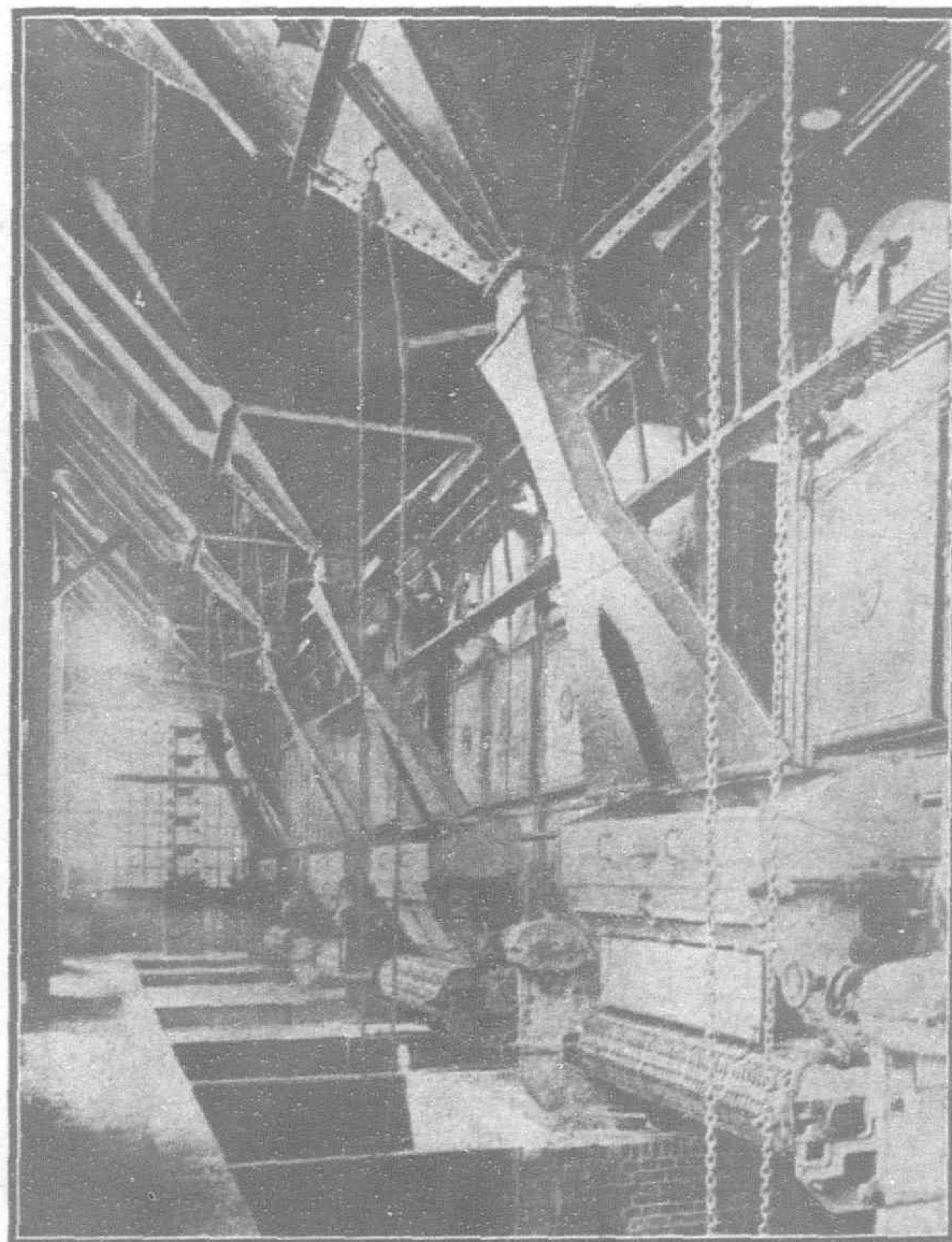
Winding of Motors



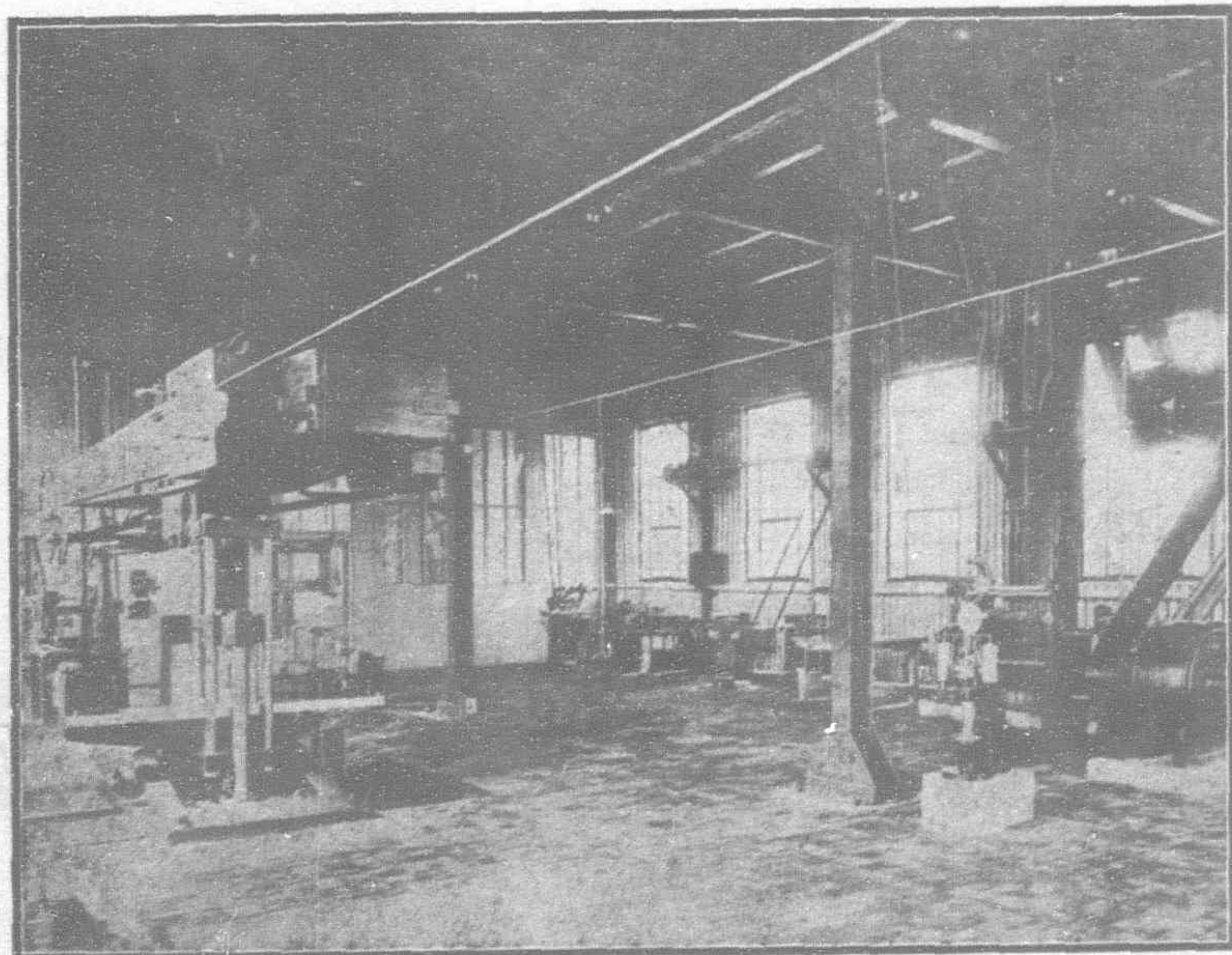
Electric Power House



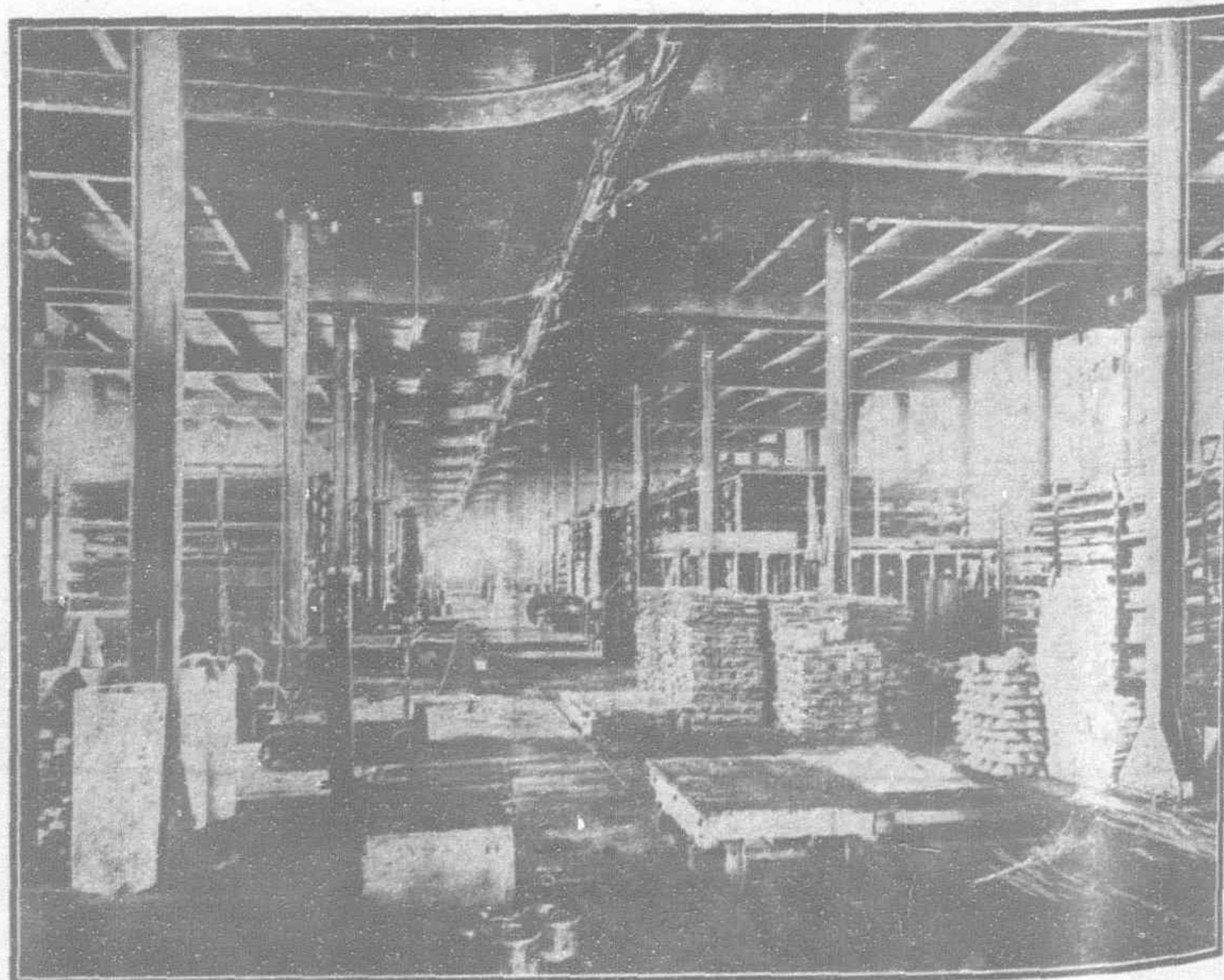
Yard Crane



Boiler Room

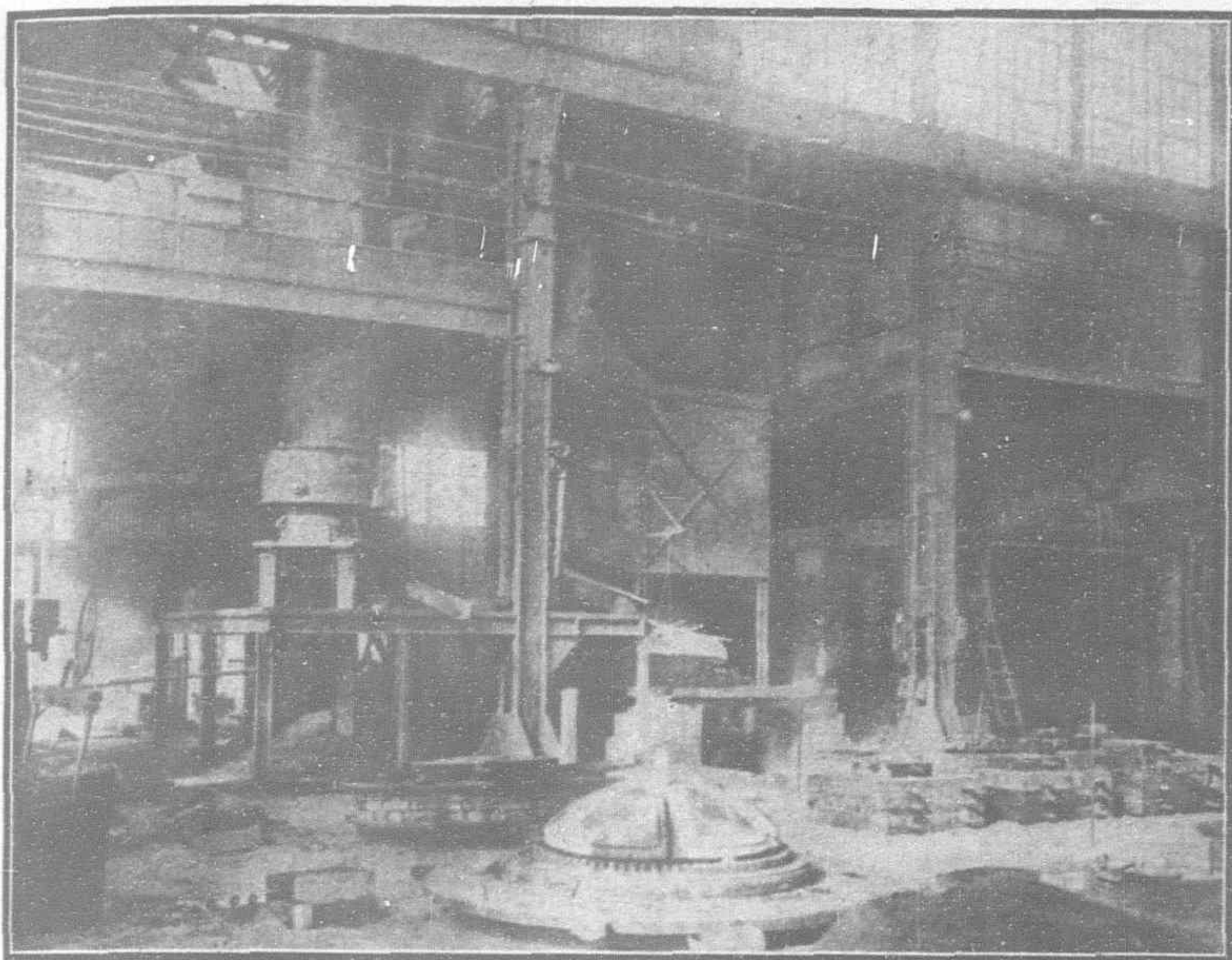


Testing Laboratory

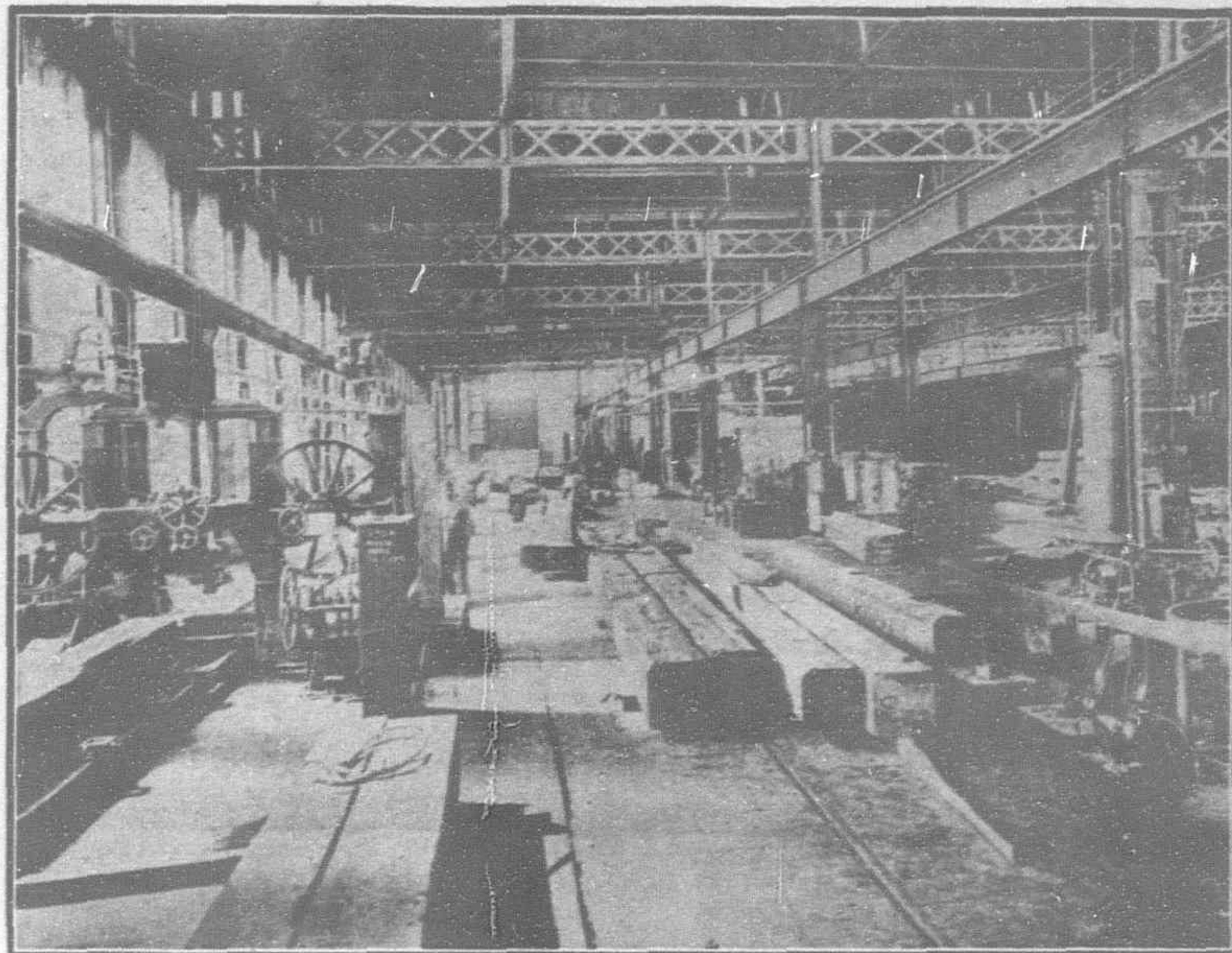


General Store House

BUILDING PLANT AT SHAKAKO, NEAR DAIREN



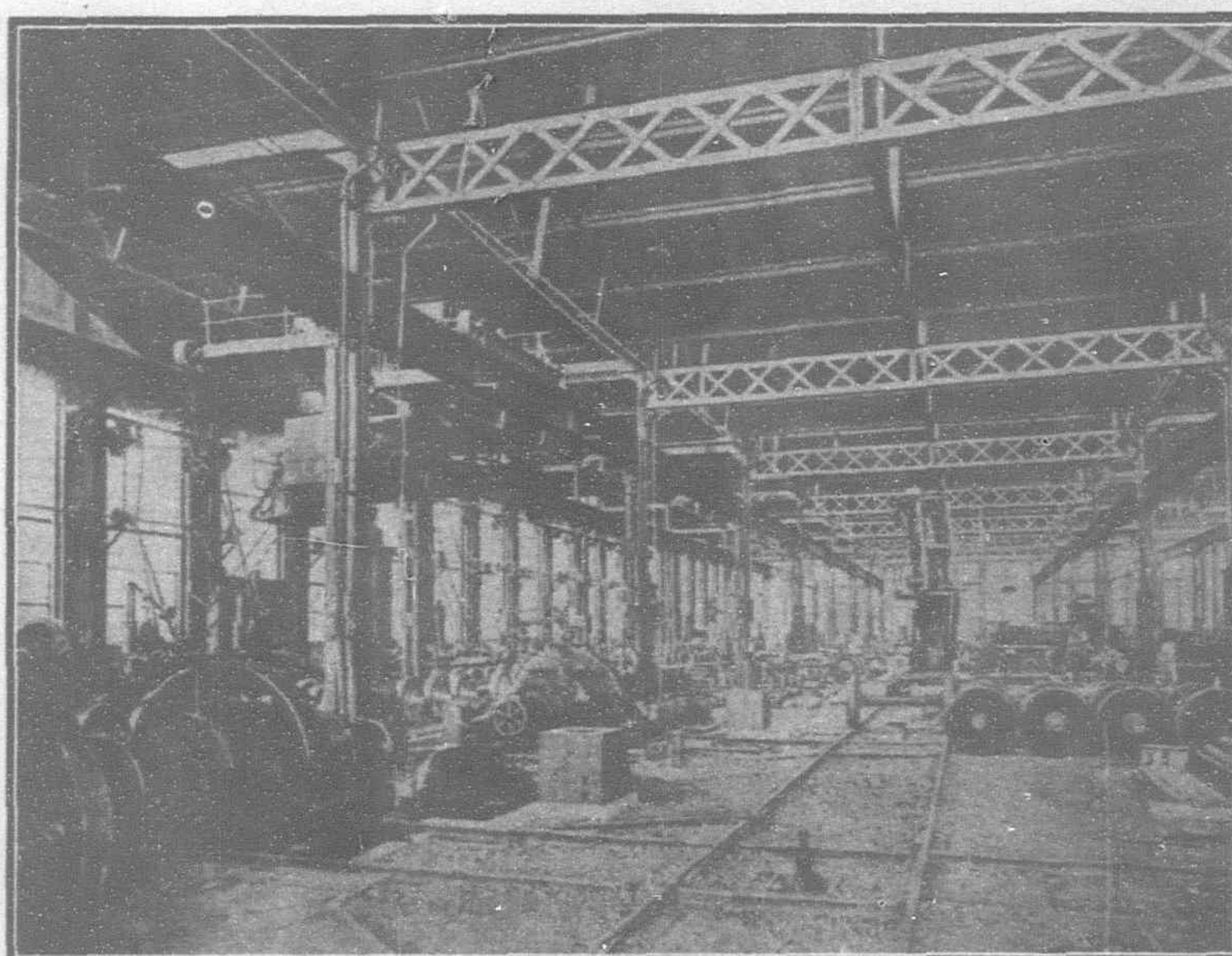
Steel Foundry



Wood Working Shop



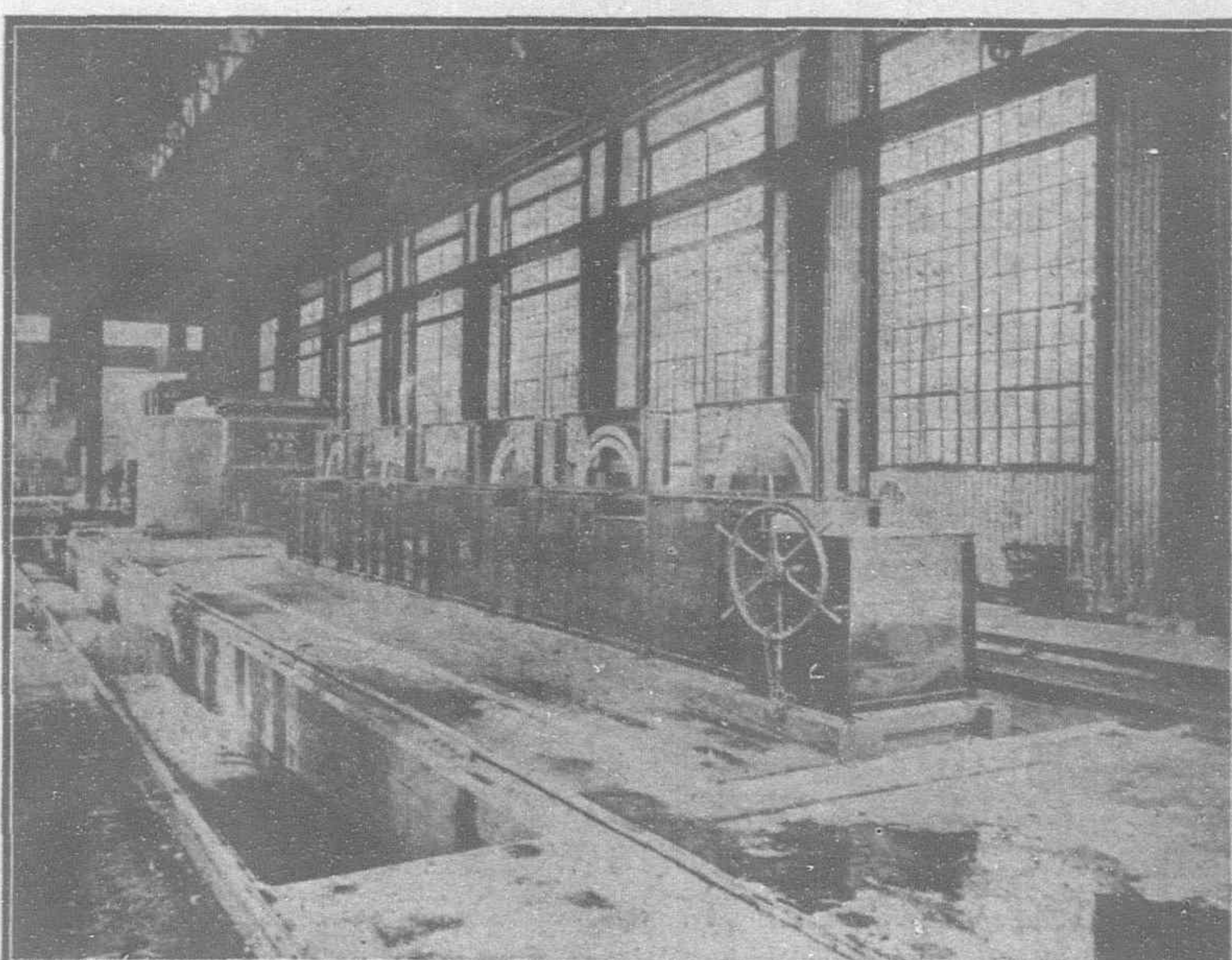
Machine Shop



Car Truck Shop



Engine Erecting Shop



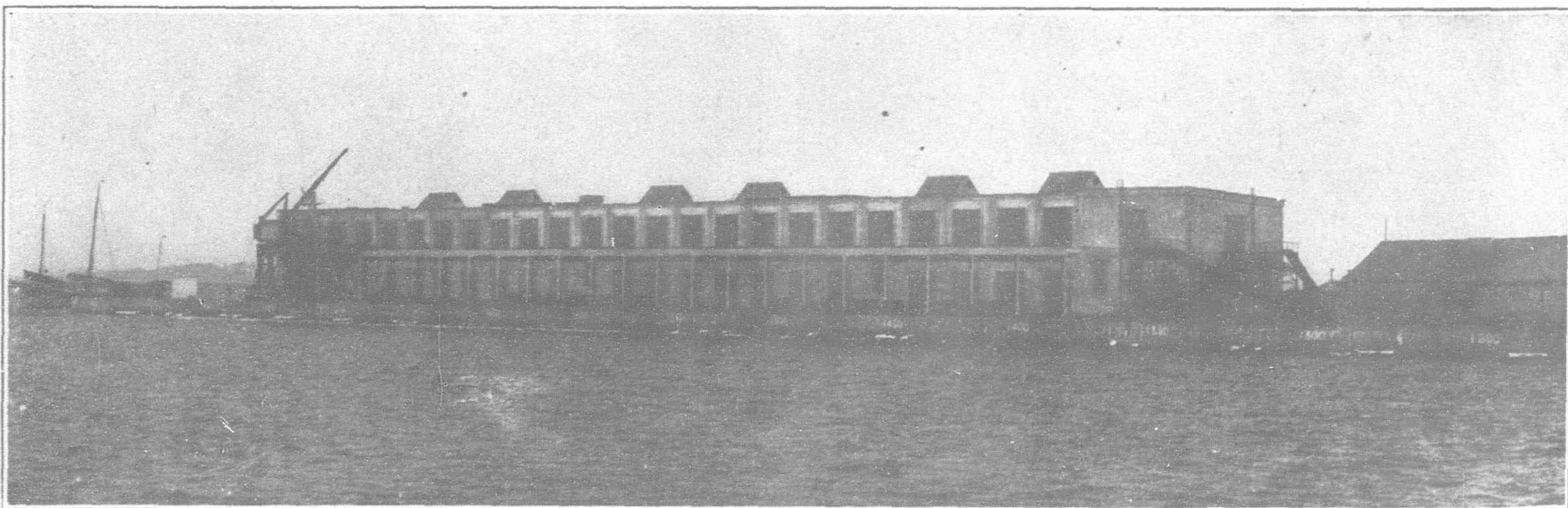
Engine Weighing Shop

THE OLD WAY AND—



Bags of Beans stored on Dairen Wharves before the Establishment of the S. M. R. Warehouse.—Ten Million Tons of Soya Beans are hauled annually by the South Manchuria Railway from the Fields of Manchuria to the Wharves at Dairen, where they are Shipped to all the Countries of the World, or Converted into Oil and Bean Cake at the large Mills Erected at Dairen.

—THE NEW



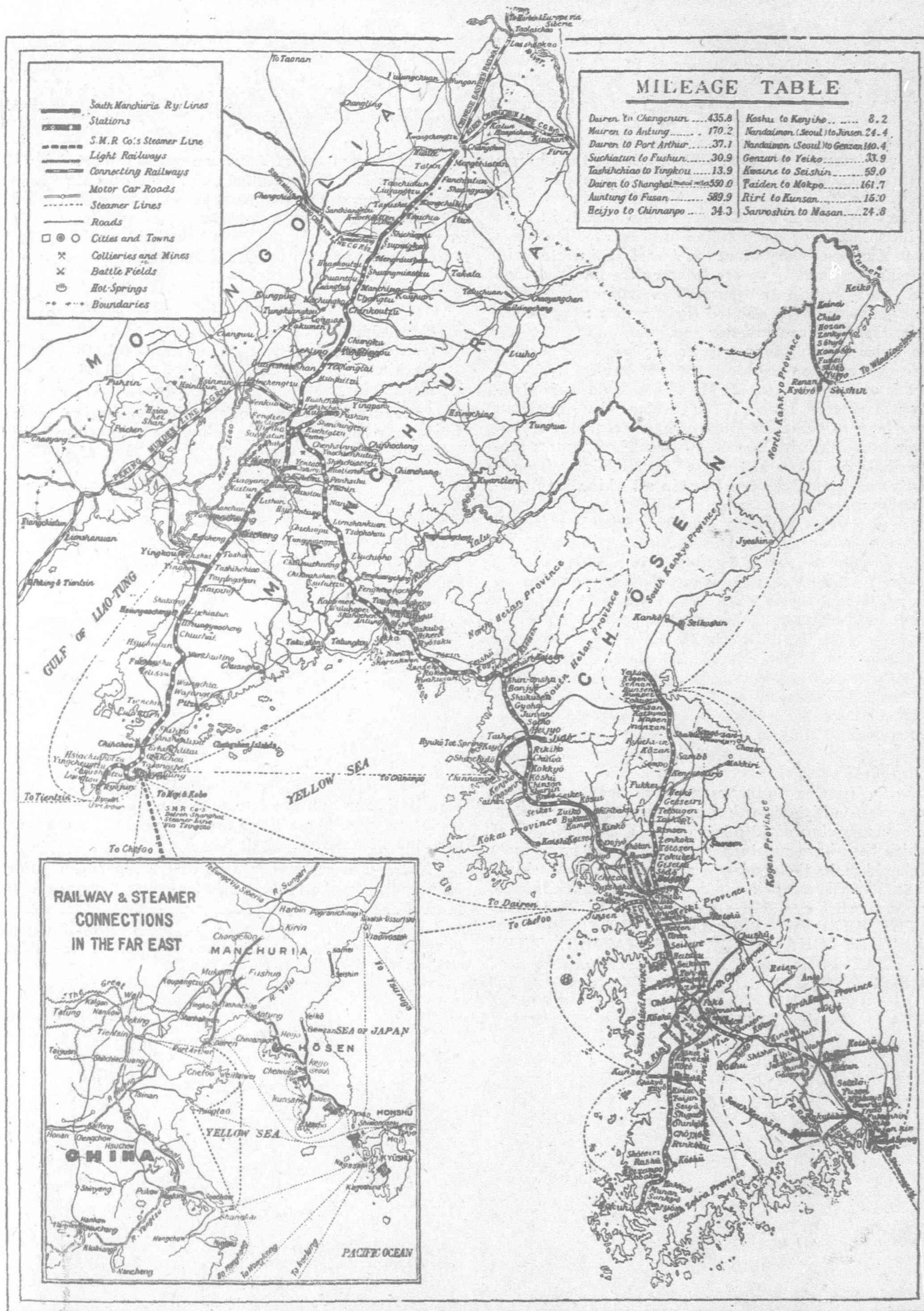
One of the Several Permanent Concrete Wharves and Warehouses of the New Wharf System of Dairen Harbor for the Storage and Handling of the Immense Soya Bean Shipments which pass through the Port.

practical gratitude, the magnitude of which few have suspected. FOR THESE FIGURES REVEAL THAT JAPAN'S FRIENDSHIP FOR AMERICA EXPRESSED IN TERMS OF DOLLARS AND CENTS HAS BEEN WORTH MORE TO US THAN IF OUR BANKERS AND INVESTORS HAD FINANCED, CONSTRUCTED AND EQUIPPED ALL THE EXISTING CHINESE GOVERNMENT RAILWAYS. THESE FIGURES TELL US THAT THE MANCHURIAN RAILWAY SUPPLY AND MACHINERY MARKET AND THE GOOD WILL AND FRIENDSHIP OF JAPAN IS WORTH MORE TO US THAN ALL THE PROSPECTIVE BUSINESS THAT WE CAN OBTAIN FROM CHINA. These figures stand as a silent testimonial to the gratitude of Japan for timely aid tendered in her

hour of great need in 1904. She has repaid the debt with compound interest.

Americans may well ponder over the question of how long it will be in the present state of the international money market and the continued unrest in China, before American capital invested in Chinese railways through the new Consortium, will reach the amount that will permit our manufacturers to draw dividends to the extent of \$15,000,000 a year in orders for materials? How long will it be before \$150,000,000 can be raised by the Consortium for railway construction in China? And remembering that the United States and Japan will have to carry the British and French share of these loans for some years and permit their manufacturers to compete on equal terms or allot them their proportionate share of the materials, it may be worth while for some economical shark with a taste for guessing, to figure out just

SOUTH MANCHURIA RAILWAY



what percentage of these orders will be booked by American manufacturers. A little superficial study will convince us that it will be many, many, weary years, before the loans are raised that will insure to our manufacturers orders for railway materials aggregating \$15,000,000 a year, or more. We have before us the official figures that the South Manchuria Railway has expended over \$142,000,000 in materials since the line came into the possession of Japan, which is equivalent to an investment of \$300,000,000 in Chinese government railways, or double what the entire system is worth.

This comparison is not made to disparage China, as some day, under a stable government, when the power to make loans is taken out of the hands of the individual ministers and military grafters and vested in a parliament and responsible ministry, the Chinese railway market will become one of the most profitable in the world. It is also true that to create this profitable market for American manufacturers, immense amounts of American capital will have to be invested in China. For every dollar in orders for materials that will come to America from China, the American investor will have to lend China *two*, and if we are to carry the financial load for France and Great Britain and permit their manufacturers to compete on an even basis, or be allotted their proportionate share of the materials, the American investor may have to put up *four* dollars in order that his industries may receive *one* back in trade. It is no exaggeration therefore to emphasize that the Chinese market is one of the future. The South Manchuria Railway market is a market of TO-DAY, in which the American investor has not been called upon to furnish one cent of capital. The Closed Door to Manchuria does not exist. These figures conclusively prove that the Door that opens into China through Dalny is the only real bona-fide Open Door in all China for American railway and engineering materials.

These figures prove that Japan is America's friend; a friendship, which in view of our misdirected diplomacy, passeth all understanding. *Daylight has come in Manchuria.* Americans are permitted for the first time to understand the full meaning of Japan's silent partnership from which our steel and machinery manufacturers have been drawing fat dividends without the investment of a dollar. In the light of these facts, we have no patience with those, who, in their misguided efforts to antagonize Japan, would destroy our best engineering trade connection in Asia, and the best advertisement of American railway practice outside the United States, for the sake of problematic future benefits that must be created through the raising of huge Chinese loans, and subject to the recriminations that must follow any attempt on our part to properly safeguard our investments through supervision over expenditures and the management of Chinese railways. It is high time that the American manufacturers who have been drawing dividends from this partnership of friends, in which they have not been called upon to participate with capital, should make their voices heard and felt at Washington against the systematic campaign to deprive them of the benefits of this trade. **WE ARE SACRIFICING THE SUBSTANCE TO CHASE THE SHADOW. THE FACTS ARE HERE BEFORE YOU. THEY CHALLENGE REFUTATION. THEY ARE PROOF THAT YOU HAVE BEEN SYSTEMATICALLY IMPOSED UPON AND MISLED BY A COTERIE OF PRO-CHINESE OFFICIALS, AND THAT THE ONLY OPEN DOOR IN ALL CHINA FOR YOUR PRODUCTS IS IN MANCHURIA.**

AMERICAN TRADE WITH MANCHURIA DURING THE YEARS 1915-19.

The total of American export to, and import from, Manchuria for the years 1915-19 amounted to 98,848,889 haikwan taels.

The following table shows the annual amount of this trade:

	Hk. Tls.
1915	3,058,959
1916	5,032,864
1917	21,449,765
1918	39,428,952
1919	29,898,349
Total	98,848,889

It may be seen from the foregoing that American trade with Manchuria has been increasing rapidly. In 1915 its returns were Hk. Tls. 3,000,000 in round figures; in 1918 they exceeded the sum

of Hk. Tls. 39,000,000, which is an increase in four years of about thirteen hundred per cent.

The following table shows the annual amount of American goods imported by Manchuria during the years 1915-19:

	Hk. Tls.
1915	2,643,416
1916	2,478,655
1917	5,528,113
1918	11,054,987
1919	19,500,778
Total	41,205,949

Thus the amount of American goods imported by Manchuria in 1915 was Hk. Tls. 2,600,000; in 1919 it was Hk. Tls. 19,000,000. This is an increase in five years of about nine hundred per cent.

The principal goods imported from America were petroleum, iron and steel, machinery, and household goods*. The following is the amount of each in 1918 and 1919 respectively:—

	1918 Hk. Tls.	1919 Hk. Tls.
Petroleum	1,133,462	3,605,744
Iron and Steel	3,690,568	4,788,726
Machinery	1,306,121	6,559,636
Household goods	1,861,867	1,068,662

America's important position in the foreign trade of Manchuria may be seen from the following comparison of the total of American trade with that country with that of whole Manchuria trade:—

	1918 Hk. Tls.	1919 Hk. Tls.
Manchuria's foreign trade	195,124,973	274,766,651
America's trade with Manchuria	39,428,952	29,898,349
or 20 %		or 10 % +

The annual amount of England's trade with Manchuria during the years 1915-1919 is indicated below for the sake of comparison.

	Hk. Tls.
1915	8,218,574
1916	9,337,260
1917	12,629,963
1918	15,596,559
1919	23,604,260

As against the 20 per cent. of America, England's trade with Manchuria for 1918 was less 8 per cent. of the latter's foreign trade and for 1919 a little over 8 per cent. as against the 10 per cent. of America.

Note.—The customs returns of the four open ports of South Manchuria are the basis of the foregoing figures.

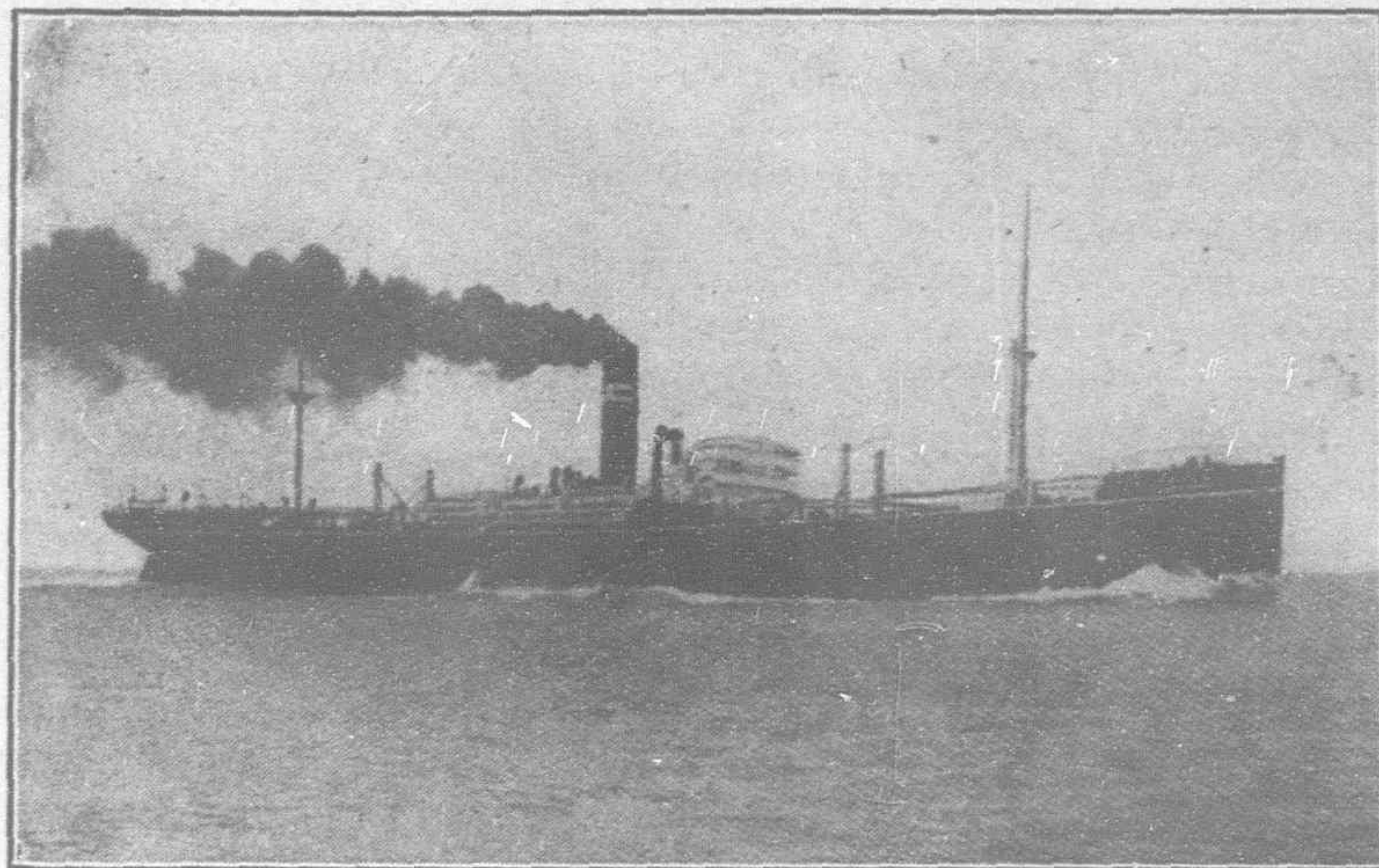
*America exported in 1918-19 75 per cent. of the petroleum consumed in Manchuria, 47 per cent. of iron and steel, and 65 per cent. of machinery and mechanical appliances.

Liggett and Myers Enter China

Mr. George Whitaker, director of Liggett & Meyers Tobacco Co., one of the largest firms in the tobacco trade of the world, announced recently in Shanghai that his company has definitely decided to enter the China field. A staff, comprising picked men from the "L & M" organization in the United States, is now being mobilized at Shanghai.

Offices have been opened at 5 Siking Road, Shanghai, Mr. J. W. Andrews being manager of this branch. Mr. R. S. Rogers is manager of the Hongkong branch and Mr. G. C. Wilmer sales manager for North China. The firm is already well established in the Philippines. Mr. Whitaker has made a complete survey of the Far Eastern field and is understood to have made a very favorable report of the firm's prospects in the Orient.

FOUR BIG Japanese Shipping Companies May Form Huge Combination



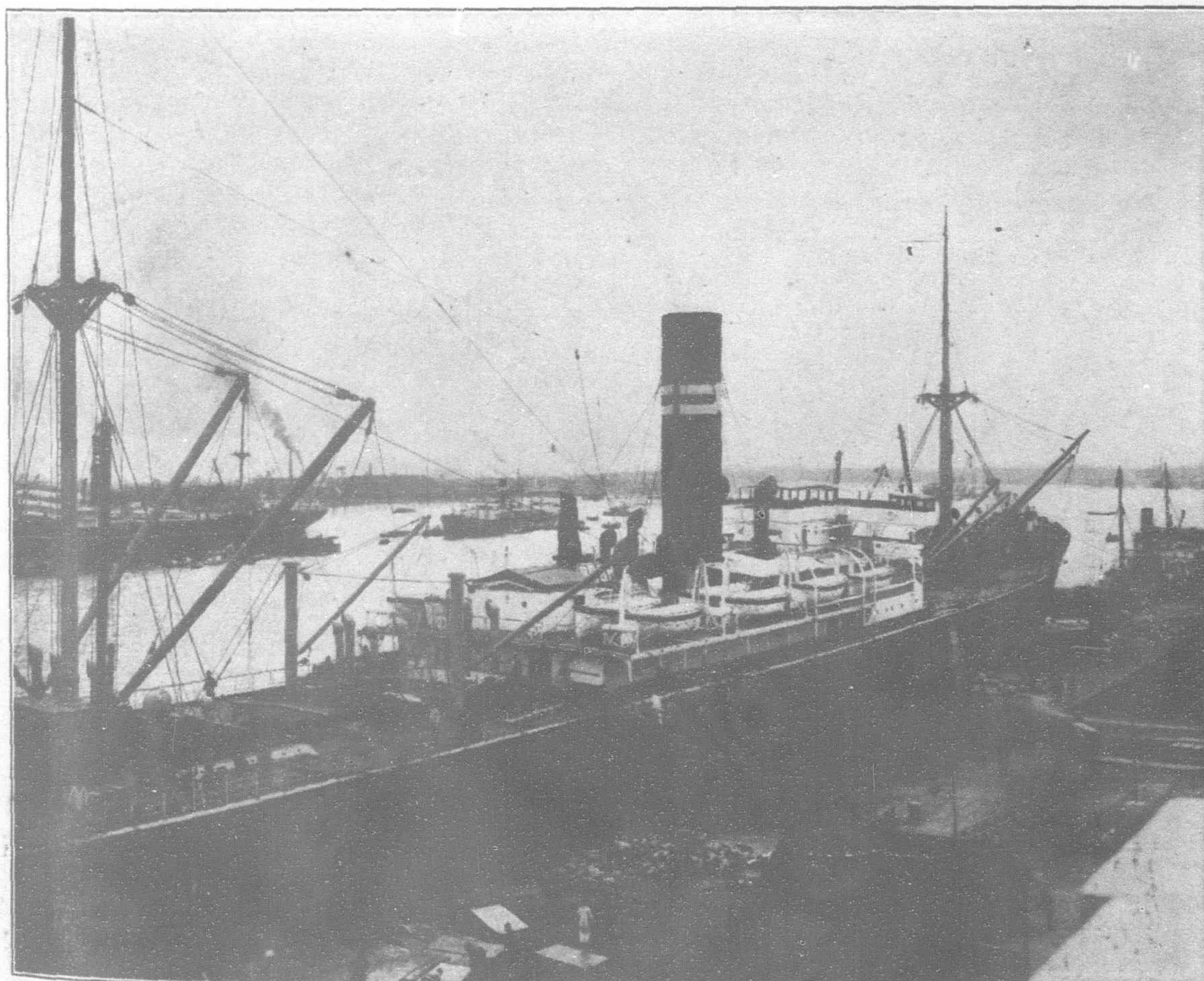
Type of Up-to-date Japanese Steamer

A MALGAMATION, under government support, seems to be generally accepted as the most practical manner by which the larger Japanese industries adversely affected by the continued business depression can be maintained in profitable operation. Following the creation of the Imperial

Silk Company the proposal to amalgamate the larger ship-building plants and to nationalize the water power plant, and the recommendation of the Economic Investigating Committee that the larger steel manufacturers pool their interests in one large combine under the leadership of the government steel works, a move is well under way to effect a merger of the four largest Japanese shipping companies. In the office of the Minister of Communications conferences have been held in which Baron Kondo, president of the Nippon Yusen Kaisha, Mr. Yamaoka, vice-president of the Osaka Shosen Kaisha, Mr. Asano, president of the Toyo Kisen Kaisha, and Mr. Matsukata, president of the Kokusai Steamship Company, have taken part. As yet no definite plan has been decided upon.

Considerable propaganda has been carried on by interested parties for the complete nationalization of shipping to be operated as a government concern along the lines of the U.S. Shipping Board. It is urged that the government would derive great advantages in an emergency from such a scheme, while the shipowners, who are in a desperate position, would be relieved. This plan advocates that the government pay for the ships in bonds. The authorities, however, seem to favor a merger of the four largest companies under the leadership of the Nippon Yusen Kaisha, who would take over the Toyo Kisen Kaisha, the Kokusai Steamship Company and the Osaka Shosen Kaisha. Such a combination it appears could be readily carried out but for the strong position of the Osaka Shosen Kaisha, which last year increased its capital to Y.100,000,000 or the same as the Nippon Yusen Kaisha.

The position of the Osaka Shosen Kaisha can be better understood by a comparison of the capital and tonnage of the various companies.



Japanese Steamships at Shanghai, China

Capital.

	Subscribed	Paid-up
N.Y.K.....	Y. 100,000,000	Y. 58,000,000
O.S.K.	100,000,000	62,500,000
T.K.K.	32,500,000	22,720,375
K.K.K.	100,000,000	87,500,000

	Reserve and Amounts Car- ried Forward	Percentage on Paid-up Capital
N.Y.K.....	Y. 112,230,445	194
O.S.K.	64,283,909	103
T.K.K.	14,281,221	66
K.K.K.	7,453,742	9

Ships Owned.

N.Y.K. No. of ships	98
Total valuation Y.	34,139,492
Gross tonnage.....	462,932
Value per ton	Y. 74
O.S.K. No. of ships	126
Total valuation Y.	51,834,822
Gross tonnage.....	335,073
Value per ton	Y. 155
T.K.K. No. of ships	10
Total valuation Y.	18,081,879
Gross tonnage.....	90,204
Value per ton	Y. 200
K.K.K. No. of ships	58
Total valuation Y.	157,450,257
Gross tonnage.....	312,373
Value per ton	Y. 504

Latest Half-Yearly Profits.

		Percentage
N.Y.K.	Y. 16,996,366	58.6
O.S.K.	12,260,463	39.2
T.K.K.	800,835	7.0
K.K.K.	13,091,468	29.9

In addition, the Toyo Kisen Kaisha has outstanding debentures for Y.8,900,000, and the Kokusai Kisen Kaisha for Y.73,900,000.

The Kokusai Kisen Kaisha was organized early last year by taking over some of the vessels owned by the Kawasaki and Asano Dockyard Companies, the Yamashita Kisen Kaisha, and some other shipowners, operating as tramps, the government lending a helping hand by advancing Y.6,250,000 at a low rate of interest to the promoters. It has been hard hit by the recent depression. In bringing about this new huge shipping combine, the government seems to be influenced by a desire to reorganize the mercantile marine in the form of a huge semi-official trust for the purpose of presenting a solid front against the pressure of foreign competition. There seems to be no inclination to grant any special favors or further subsidies to the proposed combine, or to follow the policy of the U.S. Shipping Board. The present slump and decline in the shipping business which has tied up many steamers, brought down rates and destroyed values, together with the menace of the Jones Act and the revived activity of European shipping in Oriental business, has caused the Japanese government and leading shipping men grave concern as to the proper way to keep a fleet of 3,000,000 tons in profitable operation. The coastwise trade may be able to absorb some 500,000 tons, but this tonnage will be composed largely of the smaller vessels, leaving 2,500,000 tons that must seek its outlet in foreign trade.

Divided into many small companies with conflicting policies it is impossible for the Japanese mercantile marine successfully to meet the strong organized competition of America or Great Britain. It is generally conceded that the Nippon Yusen Kaisha has the greatest experience and prestige and is in the strongest position to compete with foreign shipowners and head such an amalgamation for the protection of the national shipping interests, by the maintenance of the present routes against foreign competition. If some such step is not taken there is danger that the routes opened during the war by the smaller companies may have to be surrendered and the companies forced into bankruptcy, and Japan's maritime position lost forever.

The shipping situation is undoubtedly very grave, made more so by the menace of the Jones Act. At the end of September there were 91 idle steamships aggregating 157,335 tons laid up in the ports of Japan. Steamers that during the war sold for Y.800 to Y.900 per ton have changed hands recently at the rate of Y.200 per ton.

The situation seems also to have affected some of the larger banks, but it is officially denied that shipping loans are in any

danger and asserted that a conservative policy has saved the banks from any undue losses. During the war some of the leading Japanese banks advanced money to the shipowners on the security of their ships and it is said that these loans in some instances represented 80 per cent. of the war-time valuation of \$450 to \$500 per ton, which has shrunk to about \$150 a ton, and in some instances as low as \$100. As far as the more important banks are concerned they admit that considerable sums were advanced on war-time valuations, but not to the extent of seriously crippling their resources. All of these shipping advances will be ultimately recovered. Granted, however, that considerable money is tied up in advances to shipping that cannot be immediately recovered, the move advocated by the government would seem to be one best calculated to bring about a situation that would relieve the banks from any possibility of ultimate loss.

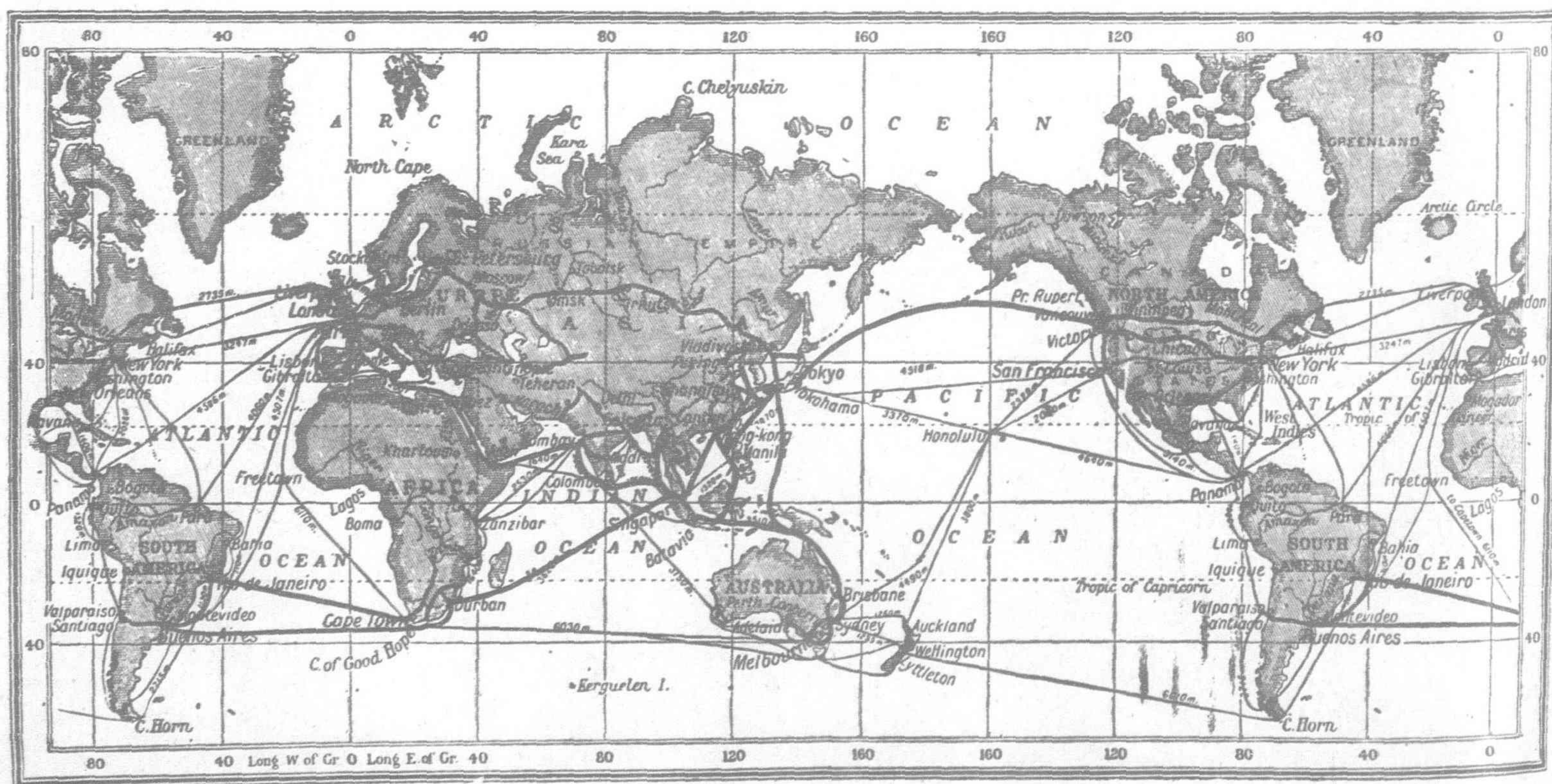
The plan for amalgamating the four larger companies contemplates the entrance of other smaller companies into the combine, if they desire to do so. As the principal foreign routes have been opened and operated by the four larger concerns their preservation is the first concern, as the nation must henceforth depend largely upon foreign commerce to dispose of her manufactured products and maintain an economic equilibrium.

Rumors and reports have been in circulation for some time that the Toyo Kisen Kaisha had been hard hit by the general business depression in Japan and falling off in freights. At its general annual meeting held on September 28, Mr. Asano, President of the Company, disposed of these rumors in his speech to the shareholders in the following words:

"This spring the shipping situation becomes greatly depressed all over the world. Though the Jones Act has not yet been carried into effect, it has already affected the shipping market. When it is enforced, the result will be general depression.

"I do not believe, however, that the foreign trade of Japan will become more depressed. On the contrary, it may improve. I believe that things will improve by 1922, but it is impossible to predict to what extent. Perhaps it is wiser not to risk a prediction on this point.

"There is talk of the amalgamation of shipping companies, and when representatives of four shipping companies met at the official residence of the Minister of Communications on September 26, he referred to the subject in a sympathetic spirit. As a means of meeting after-war competition in shipping, we may be compelled to amalgamate with other companies. In this case, we



Japanese Shipping Routes that Girdle the World

shall be able to cut down our expenses, and there will be a corresponding increase in profits.

"There are some rumors regarding the financial position of this company, but there is no cause for concern. As against the paid-up capital of Y.22,000,000 and debentures amounting to Y.10,000,000, we have Y.20,000,000 worth of property which can be converted into cash at any moment, and moreover, the value of ships and other property is about double this amount. Our plan for the construction of a fleet of freighters is steadily nearing completion, and there is absolutely no cause for pessimism regarding the future of the company."

At this meeting a dividend of 15 per cent. was declared for the last business term (January to June), a decrease of 5 per cent. under that for the preceding term. The net profit amounted to Y.800,835, compared with Y.1,075,086 for the previous term. A sum of Y.302,696 was brought forward and Y.650,000 was drawn upon the dividend-equalizing reserve. These figures, together with the net profit, make a total of Y.1,753,532, and of this amount, Y.41,000 was set aside for legal reserve, and Y.1,592,366 for dividends, while Y.120,165 was carried forward. The drawing of Y.650,000 on the dividend-equalizing reserve was due to the desire of the company not to cause a big reduction in the rate of dividends. The balance of the reserve amounts to Y.5,350,000.

The Report of the Department of Communications on Japanese shipping, shows that at the end of June last, the number of vessels over 20 tons register were 3,086, with a total of 3,132,160 tons, an increase of 46 vessels and 126,610 tons over the figures at the end of December last.

Of these vessels, 790 are over 1,000 tons, with a total of 2,636,000 tons, an increase of 24 ships and 135,551 tons over the figures for the end of December last. The following tonnage classification is given:

Between	1,000 and	2,000 tons	264 vessels	374,064 tons
"	2,000 "	3,000 "	169 "	410,064 "
"	4,000 "	5,000 "	58 "	256,651 "
"	5,000 "	6,000 "	108 "	615,775 "
"	6,000 "	7,000 "	34 "	219,775 "
"	7,000 "	8,000 "	24 "	178,097 "
"	8,000 "	9,000 "	5 "	40,900 "
"	9,000 "	10,000 "	9 "	85,723 "
Over	10,000	—	6 "	71,896 "

There were also 14,694 sailing vessels registering over 20 tons, with an aggregate of 985,921 tons. Of the total of 790 vessels, 742, with a tonnage of 2,492,717, are registered in Japan proper, 33 vessels with 107,281 tons in Kwangtung, 12 vessels with 27,548 tons in Korea and 3 vessels with 8,574 tons in Formosa. The government owns and operates 21 vessels with a total of 40,611 tons, while the rest of the steamers over 1,000 tons in register are divided amongst the following companies:

No. of Stmrs.	Total Tonnage	Name of Company	Head Office
100	481,079	Nippon Yusen Kasha	Tokyo
81	337,553	Osaka Shosen Kaisha	Osaka
58	311,419	Kokusai (International) S.S. Co.	Kobe
11	95,649	Toyo Kisen Kaisha	Tokyo
19	66,534	Mitsui Bussan Kaisha	"
11	64,513	Kawasaki Kisen Kaisha	Kobe
11	49,456	Katsuda Kisen Kaisha	"
11	47,287	Tatsuma Kisen Kaisha	Osaka
16	46,969	Yamashita Kisen Kaisha	Kobe
12	45,291	Kishimoto Kisen Kaisha	Osaka
8	44,969	Taisho Kisen Kaisha	Kobe
11	36,533	Teikoku Kisen Kaisha	"
12	35,749	Uchida Kisen Kaisha	"
13	32,767	Nisshin Kisen Kaisha	Tokyo
5	25,433	Kawasaki Dockyard Co.	Kobe
7	22,155	Hiroumi Shoji Kaisha	Osaka
9	21,451	Mitsubishi Company	Tokyo
5	20,043	Asano Dockyard Co.	"
11	17,896	Kusakabe Gomei Kaisha	Hakodate
5	17,675	Meiji Kaiun Kisen Kaisha	Kobe
8	16,705	To-wa Kisen Kaisha	"
8	15,627	Inukami, K.	Otaru
9	15,593	Imperial Government Railways	Tokyo
5	15,248	Sakatani Kisen Kaisha	Takahama
10	15,162	Nitta Kisen Kaisha	Kobe
4	13,810	Yoko Kisen Kaisha	"
6	14,005	Hachima Kisen Kaisha	Nishinomi
6	13,701	Kaminishi Kisen Kaisha	Kobe
3	13,696	Kobe Sanbashi Kisen Kaisha	Osaka
5	13,152	Harada Shipbuilding Works	"

No. of Stmrs.	Total Tonnage	Name of Company	Head Office
3	12,241	Yokohama Dock Co.	Yokohama
2	11,372	Uchida Zosen Kaisha	"
4	10,650	Nippon Kaiun Kaisha	Tokyo
5	10,971	Nakamura Kisen Kaisha	Chinnampo
5	30,128	Ryoto Kisen Kaisha	Dairen
3	17,002	Taisho Kaiun Kaisha	"

To the above list can be added the July and August launchings.

Five ships, aggregating 24,940 tons, were launched during July. These were as follows:—

Pacific Maru...	5,860 tons	Kawasaki Shipbuilding Co.
Meiyo Maru...	5,450 "	Asano Shipbuilding Co.
Chohei Maru...	1,700 "	Toeda Shipbuilding Co.
Argun...	7,300 "	Osaka Iron Works
Morioka Maru...	4,630 "	Uruga Dock Co.

Six steamships totalling 31,470 tons were launched from Japanese yards during the month of August, making a total of 86 steamers and 366,295 tons since January. The August launchings were:

Altantic Maru...	5,860 tons	Kawasaki Dockyard
Kainei Maru...	1,000 "	Osaka Iron Works
Taiin Maru...	8,560 "	Kawasaki Dockyard
Araba Maru...	9,500 "	Mitsubishi Dockyard
Tokugo Maru...	5,450 "	Asano Dockyard
Yoro Maru...	3,800 "	Mitsubishi Dockyard

Japanese Labor

Japanese labor organizations have decided to unite in a single body similar to the American Federation of Labor. That is the best news Japan has told the world in a long time. When the Workingmen of Japan become so insistent for their rights that they accept the organizing principle of the west an increase in the Japanese standard of living is inevitable.

One of the first acts of the Japanese Federation of Labor will be to try to prevent an influx of alien workers, willing to accept a lower grade of comfort and culture. That is to say, the Japanese workingmen are reaching the point where they can progress no further if Chinese coolie labor is allowed to take possession of the Japanese labor markets.

Japan must teach Chinese labor that it cannot seize to itself the hard won successes that Japanese organized labor is preparing to win at home. When the Japanese Federation of Labor comes to grips with this problem, there will no longer be a Japanese labor question in America. For, Japan will understand her own development requires endorsement of the American principle.—Allentown (Pa.) News.

Government Expenses

Premier Chin Yun-peng of China reports that the expenses of his government are \$13,000,000 a month, which is at the rate of \$156,000,000 a year. For a nation of nearly 400,000,000 people that looks pretty economical, as modern governmental expenses go. It is only about 40 cents a year apiece. And the premier says this expense will be cut \$40,000,000 a month by the disbanding of the army. Americans, with their public costs running into many thousand millions a year, are disposed to envy China.

But there is a fly in the ointment. China, even if she gets her expenses down to \$9,000,000 a month, will still be unable to make both ends meet, for her government's receipts are only \$5,000,000 a month.

Any taxes are heavy if citizens haven't got the money to pay them. Americans kick more about their taxes, perhaps, than the Chinese do—but they've got the money.

It may be, too, that in government as in anything else, people get just about as much as they pay for. Possibly the average American, with all his protestations of being "governed too much," would rather have, and pay for, \$60 worth of American government than 40 cents worth of Chinese government.—Dubuque Herald.

J (Just) A (About) P (People)

DURING the past month the Americans of Shanghai extended a hearty welcome to an American "Old China Hand" who returned to take charge of the Far Eastern affairs of Messrs. Gaston, Williams and Wigmore. Mr. Charles Denby can look back upon many experiences and changes in China. Like his father, who was one of our most popular ministers at Peking, he has earned the respect and goodwill of the Chinese who know how to appreciate sound sense and good humor. Mr. Denby was, in a way, born to diplomacy. He made a very popular consul-general at Shanghai. He is a good business man. Unpleasant experiences have proved the need of a high type of American business man to head and conduct American trade with the Chinese. The large interests represented by Messrs. Gaston, Williams and Wigmore will be benefited by the presence in China of Mr. Denby, Vice-President Swift, who is also here now and Admiral Palmer who is expected in China within the near future.



HON. CHARLES DENBY



HON. YUKIO OZAKI

ONE of the reasons why unreason runs rampant in most countries from time to time is that the nastiest elements are ever the more clamant contestants for pride of place on the printed page. The man who has a calm and soothing word to say is never so interesting as the man who rips the roof off and raises Cain with public opinion. "I can't get the ear of the people," a very earnest member of the British parliament once complained to Henry Labouchere. "Insult them," advised the editor of *Truth*. "Oh, no," remonstrated the man with a purpose; "I could never do that." "Well, insult the government, then," suggested Labby with one of his dry smiles. "That would scarcely be fair," demurred his inquiring friend. "My good man," declared Labouchere; "don't you know that the public doesn't give a fig for fairness. What the people want is excitement. Give it to them or remain in oblivion."

Most people do crave excitement. Mr. Yukio Ozaki, the leader of the Japanese *Kenseikai* or Liberal-Progressive party, is a very earnest man who realizes that a statesman must be interesting in order to command interest. This Japanese Jefferson is decidedly interesting. He has gone through grim experiences in order to reach the important place that he holds to-day in the political life of Japan. More than once, he has come within an inch of losing his life. Still, he comes up grinning, every time. This snapshot shows him in a characteristic attitude, returning from a recent tour. And this is what the

Japanese Jefferson has to say about taking a rational attitude on the question of the day, Japanese-American relations:

"It appears to be right at the first blush to try to improve the relations between Japan and America by viewing various problems from the national standpoint and accordingly drawing up measures to solve them. But practically this is a very difficult way of getting the desired end. I believe that it would be better for the two peoples to set forth their grievances by each placing themselves in the position of the third party and decide their justifiability. If, on the contrary, everything was viewed from the national standpoint, it is generally the case that even the unbiased party of one country would be apt to allow prejudice to creep into their consideration of the speech and action of a party representing the other country, while failing to judge impartially their own. It would only make it harder to improve the relations between the two parties, each firmly insisting on their own claims. By refutations, demonstrations and criticisms among the peoples of the two countries in regard to various problems arising between their countries, it appears that both peoples view the questions from the national standpoint. So the claims of both parties are going further and further from the possibility of coming to agreement. In other words, the more they demonstrate each other's case and the more they try to dispel misunderstandings between them, the more will there be causes of conflicts between the two countries.

"Especially when the two peoples allow their patriotic zeal to submerge their reason and make themselves fail to see facts and inveigh each other, it is to be feared that they will make their countries' relations more and more critical, though, in so doing, they must be intending to contribute to the cause of their own country. It is often the case that one's own party's pock marks look like dimples while the dimples of other parties' look like pock marks. Each people should be careful not to take prejudicial views of the other. If the two peoples look each other's doings through the jaundiced eyes, even if they are excellent nationally, they can never improve the relations between the two countries. Before making refutations and demonstrations, they should try to get at the heart of things by placing themselves in the position of the third party. The Japanese will find that their speech and deed should be improved in many respects, while the Americans will find that they have more or less to reflect upon their own. If the two peoples will take these impartial attitudes, I think it will not be difficult to solve the Californian, immigration and other problems pending between the two countries. The number of Japanese residents in America is only less than 100,000 as against the 100,000,000 natives, the proportion being 1 to 1,000. It may be added that this number of Japanese residents occupies only 1/6 per cent. of the whole population of Japan.

"Aside from the question of honour and sentiments, the presence of this small proportion of Japanese in the States does by no means merit acrid disputes, much less any question of such gravity as to threaten the friendly relations of the two countries. Some Americans are apprehended about the comparatively large birth-rate of the Japanese. But this is, I think, rather far-fetched and absurd, because it is undoubted that the birth-rate will decline with the advance of education. Besides, China and Siberian questions are creating various controversies between the two countries. But I believe that if the two peoples view each other's doings disinterestedly and rectify any wrongs and mistakes on each other's part while not hesitating to carry out what are good and just, they will never come to conflict. If, instead of doing so, either party try to put in practice what are unjust knowingly, it will lead them to come to collision with the other. Scathing criticisms have of late been hurled at Japan for militarism. These charges are refuted by some of our country-men who insist that Japan is not militaristic. Since, however, about 50 per cent. of the expenditure in our general budget is represented by armaments, it is, I think, more than useless to refute the charge.

"To make the position of the Empire perfectly clear, it is prerequisite to eliminate the fact which justifies the charge. Unless this is done, any demonstration, however eloquent it may be, will be of no avail. If militarism is believed to be right, it should be openly declared and upheld. If, on the contrary, it is considered wrong, it should be done away with. So long as Japan continue to refute the charge against her militarism with-

out giving it up, it will be difficult to expect to secure amicable relations with other countries. As in the question of militarism, so in all other things, Japan should consider impartially what are to be rectified and what are to be pursued. What she believes to be right should be pursued whatever objections may be offered, while what she considers wrong should be discarded without hesitation. This is to be followed not only by Japan but America and all other countries of the world. The Powers who have suffered seriously in the late war are all declaring their intention to keep in check the repetition of war.

"From, however, the methods of education and other matters, it appears rather that they are endeavoring to create fresh *casus belli*. As an illustration, history text books used in American schools contain a narrative regarding the indignation of the colonists at the oppressive government of the mother country which finally caused them to rise in revolt against Britain and declare independence. Thus hatred for Britain is injected into the receptive mind of the boys and girls of America. Since the Powers go on with these methods of education, they cannot be regarded as having any intention to avoid future wars. Now that the Powers have suffered the disaster of war to the dregs, the loudest cry should be raised for taking the opportunity of fundamentally improving education and other matters. To secure the promotion of the friendship of Japan and America, it is of cardinal importance to reform education root and branch. Permanent peace between one country and another cannot be hoped for so long as the authorities leave unchanged text books for the primary school by which scholars are encouraged to admire heroes who have rendered services to the state in the cause of aggression.

"In short, in order to view the "other country," it is necessary for one to place oneself in an entirely disinterested position. Because, if the people of each other's country allow their arguments to be influenced by perfervid patriotic sentiments, it will inevitably lead to conflict. It must be added that each people must act from the national standpoint when applying the results of their impartial observations to the reform of the policies of the state."

Chino-British Schemes for Industrial Development

ADDRESSING a recent meeting of the China Association and Far Eastern section of the London Chamber of Commerce, Mr. H. H. Cox, C.M.G., British commercial counsellor at Shanghai, China, said that for some time past there had been a growing realization among the more progressive Chinese officials and merchants that they would never succeed in developing the country's resources, either commercial or industrially without the assistance of foreign capital and that foreigners would invest if they had guarantees that their money would be properly expended.

Several groups of influential Chinese had recently approached British interests with proposals for co-operation in various mining and other industrial undertakings, and in some cases agreements for the formation of Anglo-Chinese companies had actually been concluded.

The difficulty was that these undertakings could not register as British companies, as their operations would necessarily be confined to the treaty ports—our rights of extraterritoriality making it impossible for us to carry on business in the interior—and they could not safely register as Chinese companies owing to the present unsatisfactory state of Chinese company law.

Attempts had been made to get round this difficulty by obtaining charters from the central government, but in the present disturbed state of the country it was doubtful how far these charters would be recognized by the semi-independent provincial governments.

However, the successful development of China's vast resources undoubtedly depended largely on co-operation between foreign and Chinese interests, and there was every reason to hope that some means would shortly be found of overcoming the difficulties which at present hindered the formation of these Anglo-Chinese companies.

The Far Eastern Review

A Monthly Review of Far Eastern Trade, Finance and Engineering, Dedicated to the Industrial Development and Advancement of Trade in Far Eastern Countries

ENGINEERING FINANCE COMMERCE

5 JINKEE ROAD, SHANGHAI, CHINA

Telegraphic Address: Farview, Shanghai

SHANGHAI, NOVEMBER, 1920.

Nine Years After

A COUPLE of weeks ago the Chinese celebrated the ninth anniversary of their republic. On October 10—China's Fourth of July—fond mothers and fathers with their babes and growing children were to be seen pleasure-making in the foreign settlements, rickshaing over roads and bridges and gazing upon modern buildings that constitute so many badges of Chinese political servitude.

Next day, General Li Hsun—who had headed the "league of tuchuns" against Marshal Tuan Chi-jui—committed suicide in picturesque protest against the miserable situation of his country: Famine stalking through the North, an Unholy Trinity sitting in the seats of the Mings and the Manchus, bandits and cabals and wars of sorts bleeding the people throughout the greater part of the land; suspicion everywhere, hope or comfort seemingly nowhere.

"The evil that men do lives after them, the good is oft interred with their bones."

Li Hsun's place in the history of China cannot be determined, just now. No good purpose would be served by rehashing the stories that are told of his asserted nobility of purpose, weakness of character, unselfish patriotism or greedy quest of place and power. That he had many good qualities is not to be disputed; that he might have accomplished much for his people has been manifest for some time. The all-important facts are his failure and his confession of failure. He has gone to join his ancestors in the Chinese heaven, leaving Chang Tso-lin, Tsao Kun and Chang-Hsun cocks of the walk north of the Yangtze. His political strategy, his prestige among the plain people as an "honest tuchun" had much to do with placing them in power. Then, just as soon as they dared, they discarded their dupe. Their plans for the misgovernment of China required the elimination of Li Hsun, tuchun of Nanking, and a dangerous candidate for the halo of the people's idol.

Poor China! There is not in history nor in the world today a more pathetic spectacle than that afforded by the once-proud "Middle Kingdom." A full quarter of humanity groping for self-government, asking only a square deal from the masters of mankind. That is China, nine years after the birth of the republic.

Quick upon the word that Li Hsun had ended his life came reports that he was done to death and that a new monarchical *coup d'état* had been effected in Peking. It is interesting to record that these stories failed to produce any particular excitement. The masses remained apathetic. The only people apparently worried were the Peking satraps. Very quickly they announced officially that the republic still lives. That was interesting but actually unimportant. The republic lives in name

only. That it may still be a rallying-cry for Chinese politicians is quite conceivable. It may not be quite so dead as Li Hsun or his Peiyang patron, Yuan; but it does not live as governments must live in order to justify themselves.

For this unhappy condition of China it would be cruel and unfair to cast all the blame upon the heavily-burdened brows of the Chinese. For what may happen to China, to the progress of democracy and of political efficiency in China, it is to be feared that the future historian will file a damning indictment against the treaty powers as a whole. Unless the Chinese ultimately prove themselves to be sheep, created but to be shorn, we venture the prediction that there will be a heavy reckoning one of these days in China. Education will come in time, political perception will come in time—unless the Chinese are the sheep of human kind, they will demand and they will secure a square deal. They are not getting that, now.

* * *

The Acid Test

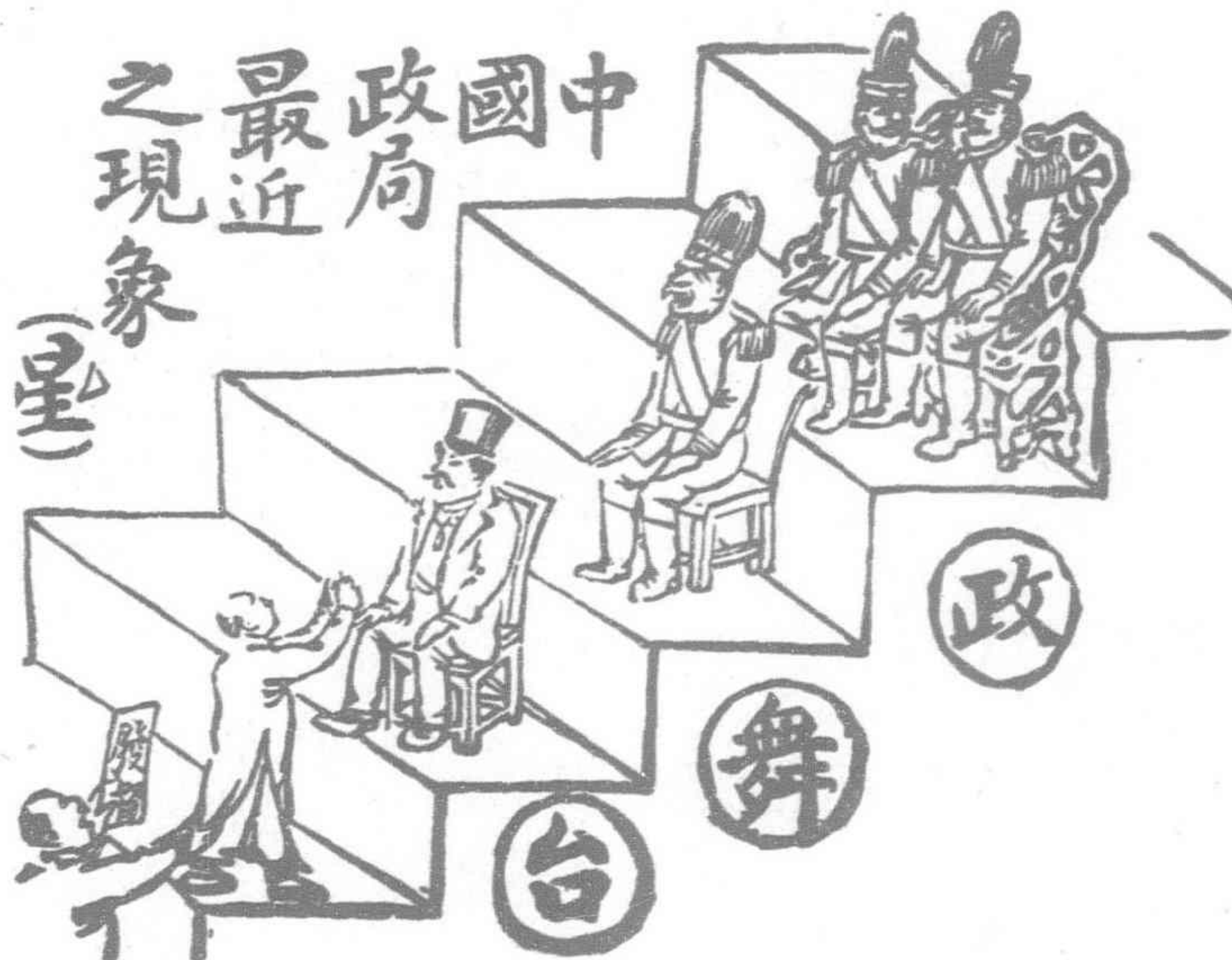
THROUGH the energetic patriotism and practical sagacity of Mr. C. C. Wang, China has taken an important step that may be developed into future Chinese control of the Chinese

eastern railway section of the Russian-built trans-Asiatic railway system. Dr. Wang took part in the Paris deliberations on ports, waterways and railways. He was Chinese technical delegate. He is well informed as to the principles and practices that were pledged under the New Freedom to meet just such cases as the Chinese Eastern Railway. The new agreement that he has succeeded in putting through is badly needed by China and it is amply sustained by the lofty postulates paraded by the Paris peacemakers. Now, let us have a showdown in the matter of the Chinese Eastern Railway. It will be good for all the world. It will be particularly useful for the Chinese. The attitude of the treaty powers, and each of them, in the matter of

the new railway agreement affords the acid test of international friendship for China. It offers the Chinese a fine opportunity to judge for themselves the precise quality of western friendship. Does western friendship for China envisage China's welfare? Is it helpful and wishful towards the complete restoration of Chinese sovereignty over China? Is it merely a cloak under cover of which western powers promote Asiatic enmity for their own particular profit and political ends? Are the western powers more interested in weakening and curbing Japan than in aiding China?

Mr. Wang has scored in a way that entitles him to the thanks of his own people and the confidence of all real friends of China. He is sure of one thing—the unstinted support of the American press and the American people. It is to be hoped that the American legation is alive to the necessity of backing up Mr. Wang and China. Minister Crane has sound American views regarding the Horned Beast of Bolshevism. He was a passenger on the steamer that took Trotsky from America on his way to Russia. In Petrograd, he witnessed Lenin's arrival from Germany. He is first of all an American business man. The Chinese regard him as their friend. It would be ungracious and unfair to assume that any mistaken, however honest friendship for Russia may cause him to prove merely friendly to China with Russian and anti-Japanese reservations. It is also but just to Mr. Crane to remember that he has on his back a Potomac policy that seems to see much beauty in the whiskered murderers of Muscovy. Nevertheless, this is the acid test and China

"THE CHINESE GOVERNMENT"



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and Mr. Wang are entitled to apply it in the eyes of all the world.

Does Western friendship for China mean merely direct antagonism to Japan? Is that the answer? The acid test of the Wang agreement will tell the tale.

* * *

Our Correspondent is Quite Right

A CHINESE subscriber writes us as follows:—

"I have for a long time been a subscriber to your FAR EASTERN REVIEW. Many times you have been of much help to China. Now, you say Chinese should be friends with Japanese. Don't you think it would be better friendship for you to tell Japan to prove friendship for China and win China's friendship by honest means?"

Our answer is an emphatic "Yes!" THE FAR EASTERN REVIEW is very strongly of the opinion that JAPAN CAN WIN THE FRIENDSHIP OF CHINA ONLY BY PROVING TO THE CHINESE THAT JAPANESE FRIENDSHIP FOR CHINA IS UNSELFISH AND ESSENTIAL TO CHINESE WELFARE. Special pleading, evasion of facts, the sugaring of bitter pills will not win for Japan the friendship or the confidence of the Chinese people. Japan must watch her step—and particularly just now—in order to help the Chinese out of their pitiful plight. A single false move might well be fatal to future Sino-Japanese amity.

That is the chief reason why, as a purely American publication, we reprobate Chinese or American baiting of the Japanese. Even a worm will turn. The Japanese have behaved very well under extreme provocation.

Japan can—and must—do still better. She will do well to ignore the acts of those who seek to stand between her and the good will of her great but troubled neighbor. While co-operating with other friendly powers in China, she will be wise to take a leaf out of America's diplomatic book and to apply to her Chinese proceedings the maxim of Secretary Cass in his statement of American policy (1857):

"Our objects in China are different from those of other powers and we ought not to permit ourselves to be drawn along with them."

Any aggression upon China is a menace to the future of Japan.

* * *

Foreign Co-operation in Chinese Enterprises

REVIEWING the business conditions and industrial growth of China for 1918-19, as disclosed by official statistics, the *Osaka Mainichi* attributes the creation of new manufacturing companies in that country to the suspension of European trade

during the war and to the boycott against Japanese goods. In 1918, eighty-four new companies with an aggregate capitalization of \$53,560,000 (yuan), and ninety-three companies in 1919, with a total capitalization of \$33,560,000, were established. Manufacturing enterprises headed the list with 52 companies capitalized at \$21,721,000 (yuan), followed by 26 electrical works with \$3,125,000 (yuan). Some of these companies have already fallen upon hard times, but owing to the eagerness of American and British interests to co-operate with the Chinese, the *Osaka* journal seems to think that they have no right to be pessimistic as to the future. Japan's trade with China during the first seven months of this year amounted to Y.382,500,000, a decrease of Y.44,000,000 compared with the corresponding period of last year, while British trade increased to the value of Y.79,000,000 for the first three months of this year. The *Mainichi* sees in these figures a grave menace to Japan's trade position in China.

The interesting part of the *Mainichi's* statement is the revelation of the exact number and capitalization of new Chinese manufacturing enterprises created during the boom and boycott periods of 1918-19. The total of \$87,000,000 (yuan) in new capital is distributed amongst 177 companies, an average capitalization of \$500,000 (yuan). The operation of these joint stock companies will be watched with great interest, as upon their success or failure will depend to a large extent the successful flotation of other new share enterprises, and the extent to which Americans may be willing to co-operate with funds or materials in enterprises over which they cannot hope to exercise full control. Many of these companies, as soon as hard times appear, will follow the traditional path to the money lender, and unless relief comes from American or British banks, necessity may once more drive the Chinese to seek accommodation from Japan. Experience tells us that when the Chinese are in the market for a loan, they invariably turn to the Japanese, whom they understand, and the same experience tells us that they will mortgage their soul and property, and the rights of their country for generations to come, to tide over difficulties.

In view of the natural and legitimate ambition of the Chinese to promote co-operation with Americans (which has been reciprocated in several notable instances during the past three years) it would seem that the real test of this partnership will come when foreign banks or the promoting mercantile

houses are requested to advance large sums to these Chinese share companies in which foreigners have no participation in the administration or supervision over expenditure. If the past is any criterion for the future, the road to the success of a Chinese share company is strewn with the rocks of nepotism, a disregard on the part of the directors of the rights of the shareholders and the constant exactions on the part of local, provincial or central government officials seeking new sources of state revenue or perquisites for their own private purposes. Except under certain abnormal conditions, the old established foreign exchange banks have invariably refused to accept the financial risks involved in such transactions; and, without evidence to the contrary, it is to be assumed that this conservative policy will be adhered to in the future. If so, this would tend to throw the burden of assisting these new enterprises upon the native banks, foreign trading



THE LATE GENERAL LI CHUN

concerns, or the newly created semi-foreign financial institutions.

It will readily be conceded that American or European co-operation in Chinese share enterprises may prove profitable, and therefore most desirable, in times of great prosperity, but unless there is some guarantee that "old customs" have been displaced by a more enlightened conception of modern business morals and efficiency, there is danger that this movement may receive a check when depression drives the new enterprises to the banks for long term loans secured on properties or plant. The larger native banks are so intimately connected with the central or provincial governments that the bulk of the available funds that should be on hand for legitimate commercial uses may be said to be held at the command of the officials. Few foreign trading firms have the capital or backing to prop up enterprises created by their activity in selling the plants, so the load may have to be assumed by the semi-foreign banks created for this purpose. Unless these banks assume their share of financing an impecunious government, the foreign shareholders may expect little support or justice in protecting loans made to Chinese enterprises. Under existing provisions, or non-existence of proper Chinese law, foreign advances to native enterprises can be made safe and secure only in so far as the lenders have the sympathy and good-will of the central or provincial authorities. The only sure road to this official friendship, has, in the past, led through the advancement of funds. If such banks refrain from coming to the aid of native enterprises, then the path to the door of the Japanese money-lender will again be worn smooth by the felt-shod feet of the silk-gowned compradore, and we will once more hear the cry go up to high heaven "the Japanese are seeking to exploit the Chinese and America must come to the armed assistance of a downtrodden people." So they go.

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The Relation of Semi-Foreign Chinese Banks to the Consortium

THE establishment of semi-foreign banks to encourage the industrial development of China is a most worthy and desirable undertaking, but in the extension of native credits great care must be taken in order to avoid conflicting with the objects and aims of the new Consortium. Such banks organized by nationals of any of the countries comprising the Consortium, must at all times be on its guard against advancing any large amount to the Peking, Provincial and Municipal authorities or to any semi-official or private Chinese enterprise, who might turn the funds over to the government. In the past, it has been a favorite practice, when all other assets were hypothecated, for impecunious governments to call upon such semi-official or private enterprises to raise funds for the benefit of the treasury.

The Consortium banks may agree among themselves, and adhere religiously to the past, to refrain from making any independent advances to the central or provincial authorities; but, if a semi-foreign Chinese bank whose foreign shares are held by interests closely allied with the banks forming the official groups in the Consortium is permitted full scope and liberty to make large advances to these private or semi-official Chinese companies, then the position of the Consortium will be undermined and its usefulness eventually killed. For it stands to reason that, in a tight pinch, the Chinese officials will resort to every possible subterfuge to raise funds outside the Consortium, and the past tells us the one safe way to beat the Group's terms is to command a semi-official or private Chinese enterprise to negotiate a loan on behalf of the authorities. This fact is so well established that it is superfluous to cite instances or stress the point. It is easy to utilize semi-official or private enterprises in this cry; and, so long as there are independent banks outside the official groups, they will delight in throwing an occasional monkey wrench into the machinery.

If one foreign or semi-foreign bank, not included in the official groups, enters into one such loan arrangement, others will

follow the lead; and the days of the Consortium will be numbered and its usefulness destroyed in the same manner that the old groups came to grief on the rocks of independent finance. It is only necessary to recall that although the old British, French and American Groups adhered rigidly to their inter-group compact and refused to finance independent deals with the provincial and, at times, with the Central authorities, the Germans got around this obstacle by having such deals financed by their trading companies, who were in turn supported by the official bank. It will be recalled also that the railway loans for Manchuria and Shantung and the partnership with the Siems-Carey Company in the matter of the Grand Canal contract, were independent transactions made through the Industrial Bank of Japan and not through the official Yokohama Specie Bank, whose managers were living up to the strict letter of their Consortium agreement. It is also a matter of knowledge that the official French Group was outwitted and the most valuable concessions in China obtained by a new independent or Sino-French bank, one-third of whose stock was subscribed by the Chinese government. The Belgian railway deals stand as a constant warning of how easy it is to outwit the Consortium, and how readily Germany could again consolidate her position through friendly neutral bankers. As Belgium became the financial catspaw for Russia, so Holland, Switzerland or Spain, could enter the field on behalf of Germany. It may seem far fetched, but there is ample evidence that an attempt was made to put through such a deal, last year. And so it may happen in the future.

As long as complete harmony, mutual trust and confidence exist between the groups, the Consortium will fulfill its mission, but just as soon as any independent British, French, American or Japanese bank or commercial concern slips through a profitable contract by advancing funds to a needy government, be it to Peking, the provinces or a municipality, the nationals of the other groups will charge unfair practices and will go and do likewise. In the general scramble for profitable business it will be difficult to avoid transactions of this nature, and it will require great patience and good will on the part of all to avoid hard feelings and jealousy.

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How Much Can China Pay?

THE deliberations of the financial groups comprising the new Consortium must soon lead to the question of advancing funds to China and to further negotiations as to terms and conditions. With the standard railway companies of America paying as high as eight per cent., the recent Belgium loan terms, with such stable Far Eastern enterprises as the South Manchuria Railway and the Oriental Development Companies issuing bonds that pay nine to ten per cent., and the Japanese government allowing seven per cent. on short term domestic issues, it is interesting to speculate on what terms China could at present raise a large long term loan for railway construction. The only way that China could hope to compete in the money market with other borrowers, and obtain funds at eight per cent. interest, would seem to be in admitting the bondholders to a share of the railway profits, which, to insure profitable operation, must carry with it foreign intervention in the management of the lines. The success of any large Chinese loan through the Consortium depends largely upon the good-will and sympathy of the investors of the lending nations. The Japanese and American investor can find many profitable and safe opportunities at home with a high rate of interest and participation up to fifty per cent. in the profits of the enterprises created, with the added assurance that his investment can always be turned into cash without loss, or, that he can use his bonds as safe collateral for loans. Can the present thinly-disguised militaristic government of China hope to provide the necessary guarantees that will insure to the investor the safety of his money? We are of the opinion that the ability of China to raise large loans, even through a well-disposed Consortium, will, in the end, turn upon

the stability and character of the government, and until a permanent representative system is established and maintained, her chances of obtaining any material relief will be rather slim.

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Narrow versus Standard Gauge in Japan

FOR many years the relative merits of standard and narrow gauge railways has periodically cropped up to unsettle the Japanese government construction program. Each ministry has entertained different views on this subject according to the party in control of the government, but the drafting of a definite railway construction program approved and authorized at the last session of the Diet, demands that the question of a permanent gauge be determined at once as part and parcel of a fixed government policy. The split on this important question seems to consist in the opposition on economic and strategic grounds by the House of Peers to the continuance of the narrow gauge system against the stand of the House of Representatives and the ministry that the present narrow gauge system should be maintained because of the huge expense necessary to carry out the conversion. The declaration of a definite national policy entered upon the statute books in the form of a law, therefore seems to be the only method whereby this issue can be taken out of politics. To this end, a narrow-gauge program is being worked out for presentation to the next regular session of the Diet.

A brief resume of the salient points connected with this controversy appeared recently in the Tokyo *Asahi*, which says that at the time of the second Katsura ministry, in April, 1911, a committee was appointed to prepare plans for converting all national roads into broad gauge lines. The plan was blocked by the House of Representatives on account of the expense attached. At the time of the Okuma ministry, the broad gauge plan was again resurrected only to again meet with failure. During the Terauchi ministry, Baron Goto formulated another broad gauge plan, which was estimated to cost only ¥60,000,000 to remodel the entire lines in the main island of Japan. The plan was to have been presented to the Diet, but it was dropped. The present ministry sticks to the idea that the narrow gauge system is the best, and that the broad gauge problem will be solved in due time after new lines are constructed and extended as well as repaired.

The House of Peers has often demanded that the various ministries establish a national railway gauge policy, which seemed to indicate that the Peers were united in favor of the broad gauge. Against this attitude the House of Representatives became united, regardless of party differences, to defeat the Peers.

The arguments on which the Hara ministry bases its approval of the narrow gauge system seems to be (1) that the railway tunnels in Japan have an aggregate length of 630,000 feet whose reconstruction would constitute a very difficult problem.

2. Most of the cars now used on the Japanese railways are no smaller than those of the European countries adopting the broad gauge system. To make the cars larger, it will reduce the ratio of serviceability of freight cars; it will make the weight of the passenger cars per capita of passengers heavier and therefore uneconomical.

3. Narrow gauge railways can render just as good service as broad gauge lines, if properly improved.

4. Concerning the traffic capacity of the tracks, the speed, capacity, steadiness of trains and the resistance of the cars, it can be made so that there will be no difference between the broad and the narrow systems.

5. There is sufficient prospect of building good locomotives equal to those used on the broad gauge railways in European countries, if the tracks are improved.

6. If, by electrifying the railways, electric locomotives are used, there will be no need of expending an enormous amount of money in improving tracks in order to increase the traffic capacity.

7. By installing automatic signal arrangements, the number of trains operated can be increased.

With the policy as outlined in the foregoing sentences the

expenditure required to connect the railways to broad gauge is absolutely useless.

Consequently, the Railway Department, in order to eliminate a controversy which has caused so much trouble for the past 30 years and which is likely to cause similar trouble in future, is now working to have a law passed so that the narrow gauge will become legalized. Mr. Ishimaru, the vice-minister of railways, is a staunch supporter of the idea of establishing such a law for the gauge railway system. Since he became the vice-minister, he has been seeking an opportunity to have a draft law presented in the Diet, but feared defeat for his bill by the House of Peers, which is in favor of the broad gauge system.

Now, however, that the ten-year construction and repair program was approved by the Diet at recent special session, the present is regarded as an opportune moment for pushing his plan forward, and will have a bill presented in the next regular session of the Diet in the fall, which shall decide the question of gauge, together with a study to be made regarding construction of an additional 7,000 miles of railways in accordance with railway plans already mapped out. Mr. Ishimaru has not as yet referred the plan to any regular conference of the Railway Department, but he enjoys absolute authority in his department, so that it is not amiss to consider the plan as outlined as the plan of the department.

At present, the attitude of the House of Peers is being carefully watched, because the peers are regarded as still favoring the standard gauge. As Mr. Ishimaru is supported by Mr. Motoda, the minister, it now remains to ascertain where the Premier stands. If Mr. Hara can be assured reasonable support from the peers, he is expected to support Mr. Ishimaru's idea. The *Asahi* learns that an understanding has been already arrived at between Mr. Ishimaru and Premier Hara, so the plan of Mr. Ishimaru has nine chances out of ten of being put into effect.

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A Real Job for the New Consortium

THE logical result of playing fast and loose with the profitable railway assets of China is now seen in the efforts of the Peking government to raise an internal loan of a paltry \$1,000,000 on the security of the Peking-Suiyuan railway. This line is purely Chinese owned, operated and constructed, built from the surplus profits of the Peking-Mukden line at a time when the military vampires were held under partial control by the old Manchu rulers. It was China's most creditable asset, not only as a revenue producer, but as an advertisement of the efficiency of her engineers. Politically and strategically, the line ranked first in the scheme of China's national defense. It controlled the ancient gateway, through which the hordes of northern barbarians had on many occasions swept through and conquered the country to the south. Because of China's promise to Russia, that no foreign capital would ever be employed to construct railways to the northeast or northwest of Peking, China had to rely upon her own resources for the funds to construct this line. It became a fixed part of the national policy under the old Manchu régime that under no circumstances should this line ever be hypothecated to European bankers, who might transfer their rights to Russia. Yet at the very outset of the Republic, the first official act of the new government was to mortgage the line to Russia through a Belgian syndicate for a loan of \$5,000,000 that could be expended without supervision. This advance was taken over and included in the Reorganization Loan. China was saved from the prospect of the line falling into the hands of Russia, whose plans for the "peaceful penetration" of China required control of this highly important strategical gateway to the capital.

Again, when Peking was hard pressed, and seeking any available asset upon which to raise funds, the authorities once more turned to the Kalgan line as (security) and sometime in 1918 hypothecated its revenues for \$3,000,000 to a group of Japanese banks who obtained, in addition, the right to advance any further funds required for its extension. Japan called checkmate to Russia and closed this avenue of Russian approach towards Peking. Notwithstanding all criticisms and arguments

to the contrary, the move in itself was highly defensible and justifiable. Russian control of the line would have menaced Japan's unprotected flank in Eastern Mongolia. Japan acted exactly as other Powers have acted in the protection of their frontiers and she corrected one of the false moves of dishonest Chinese officials in former régimes calculated to facilitate the designs of Russia upon their unsuspecting country. The contract stand, and presumably is outside the scope of the Consortium agreement. With the present intense state of feeling against Japan existing in China, the new Chinese government dares not call upon her for funds to carry out the extensions and improvements necessary to maintain this line as the outlet to an immense and productive region.

When we recall that Russia emphatically vetoed the right of the American Siems-Carey Company to build the extension of this line from Kweihwacheng along the great bend of the Yellow River to Lanchow, on the plea that it would open up this vast territory to Chinese colonization, it would seem that Americans, at least, should rejoice that Japan has stepped into this section and is now in a position to undermine the force of the Russian protest. It would also seem that the best interests of China and the Powers would be served in having the Japanese right to advance further funds to this line pooled in the new Consortium, and that the latter should lose no time in advancing small loans to facilitate its extension and so bring it under international protection, in order that the further extension towards Lanchow or into Mongolia may be carried out without fear of Russian opposition. At the same time this would erect an international barrier in this region that would amply guarantee to China her right to expand into Mongolia. It is true that there are other highly important commercial railway lines to be built in China, but none of these have such a bearing upon the ultimate peace of Eastern Asia as the immediate extension of the Peking-Suiyuan line under international auspices.

There is no good reason why the new Chinese government should puddle around seeking insignificant sums within their own country for the extension of this line for the gratification of a petty spite against Japan. Yet a short-term loan has been authorized by the government to the amount of \$1,000,000, silver, bearing interest at the rate of 7½ per cent. to run for one year from January to December, 1921, and secured by monthly payments of \$90,000 from the revenues of the line.

If the expiring Wilson administration is really interested in the preservation of the Open Door and not in preserving Russia's interests in the Far East, it would seem that wise, farseeing statesmanship would influence the State Department to instruct Mr. Lamont to make the extension of this railway the object of the first railway loan to China under the new Consortium. Japan would probably welcome the opportunity of handing over her rights to finance this extension to the Consortium in exchange for the guarantee that it provides to China that she will never be attacked from this quarter, and relieving her own position from the ever present menace of a new Russian advance. International cooperation in financing the extensions to this line is the best possible guarantee that China will be permitted to expand and find homes for her mounting millions in this fertile region. It would be a step in the right direction towards the ultimate solution of the racial issue, and divert the surplus millions of China into new channels where they can live and prosper within the limits of their traditional civilization. It is worthy of serious consideration and immediate action.

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Chinese Militarists Disregard for Contracts

AT a time when an international understanding had reached to refrain from intervention in internal Chinese squabbles and the exportation of arms into China was prohibited by the Powers, the festive militarists at Peking entered into a loan agreement with a British firm of aeroplane manufacturers for the supply of aircraft to be used for "purely commercial purposes." The loan was considered by other interests as giving the British

manufacturers an exclusive monopoly to furnish China with planes, and was promptly protested. What effect the protest had is not known. Several of these planes have been delivered to the Chinese authorities at Peking, where, it appears, they were employed during the recent assault upon the Chinese treasury by the redoubtable Chang Tso-lin and Grand Looter Tsao Kun. After the battle was over, three of the airplanes were sent to grace conquering return of the Mukden hero, three were sent to Paotingfu and the aerodrome at Nanyuan Park remained under control of Chang's troops. More recently three of Chang's planes were sent south to help his friends in the war for control of the southern and southwestern provinces. The commercial reservation of the agreement under which they were brought to China was ignored.

It seems that the British legation was at last forced to make a protest to the Chinese government against this breach of contract, pointing out that as long as the machines remained under military control they could not be employed for commercial purposes. The Chinese Foreign Office thereupon telegraphed to the new military dictator at Mukden, who replied that he would talk it over with Tsao Kun, and that, after this powwow, he would send a delegate to tell the government all about it. It will be interesting to see what follows from this, especially in view of the fact that a Chinese-American concern has been prevented from taking planes out of the Customs for "commercial purposes."

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Sino-Japanese Friendship

NOTWITHSTANDING the popular idea propagated in China and America that every Japanese considers China as a country to be bullyragged, exploited and ultimately brought under the yoke of the Rikugunsho, there exists in Japan a very powerful, and important, element whose great desire is to bring about a true, neighborly understanding with China through the application of a more enlightened policy. To this element belong the bankers, headed by their official chief, Mr. J. Inouye, the governor of the Bank of Japan; Mr. Kajiwarra, president, and Mr. M. Odagiri, director of the Yokohama Specie Bank; and active head of the Japanese group in the Consortium. These men reflect the considered opinion of the empire's money power, the sentiment of the seventeen strongest financial institutions in Japan. Ship-owners, cotton mill operators, merchants and manufacturers in many important lines belong to this group; all sincere, earnest and honest in their conviction that Japan and China must be friends and that a halt should be called to further provocative measures on the part of the military element in the government.

To the combined influence and firm stand of this group, is due the credit for waiving Japan's special rights in Manchuria and the acceptance of the American ideas concerning the Consortium. Not only was this step an expression of sincere friendship to America, but a cordial, unofficial invitation to China to stop sulking and come out into the open and be friends. Notwithstanding that Japan's action is still misinterpreted and the Consortium agreement attacked and criticised by Chinese propagandists (whose continued usefulness and income depends upon keeping alive ill-feeling between the two nations) the real Japanese friends of China rise above these petty and unworthy tactics and demand from their government the application of a more enlightened policy that will pave the way towards harmony and goodwill. It was only last month that a meeting of the Councillors of the Sino-Japanese Business Association, was held at Tokyo, and its president, Viscount Shibusawa, reported on the results of the interviews which he had with Mr. Hara, the Premier, Count Uchida, the Foreign Minister, and Lieut.-General Tanaka, the War Minister, on the resolutions adopted at the previous meeting of the Association, urging a unification of policy towards China, the acceleration of the withdrawal of troops from Shantung, and a speedy solution of the Tsingtau question. After hearing Viscount Shibusawa's report, further steps were discussed, and it was agreed that in case the government showed hesitation in acting on the suggestions made, the association

should make public the written recommendations submitted to the authorities with a view to influencing public opinion for the carrying out of the policy outlined.

Herein is seen the real expression of enlightened liberal Japanese sentiment. That this policy is opposed at all, by certain elements in the government is not because of sinister or unfriendly designs upon China. Japan does not want Shantung and would have pulled up stakes long ago, had the Chinese turned a deaf ear to mischievous advisers and accepted Japan's invitation to open negotiations for the transfer. There is a certain amount of national pride and dignity that must be upheld by the government of Japan as well as by the Chinese authorities in the settlement of this question. Conditions exist in Manchuria and along the Korean and Siberian borders, which impel the Japanese government to exercise constant vigilance in order to defend its vital interests. It is impracticable to apply any "enlightened" policy while unsettled conditions prevail in Russia, and while China remains powerless to guarantee the maintenance of order in this region. This appears to be the only point of difference between the policies of the two parties in Japan. If China will fulfil her obligations as a neighbor in Northern Manchuria, there should be no barrier to the resumption of full and friendly relations between the two countries, and the one argument of the so-called "militarists" for the continuance of a strong attitude would have to be abandoned. Now that China is asserting herself in Northern Manchuria by taking over control of the Chinese Eastern Railway and employing her own military police for its protection, it would seem that the first step has been taken towards the working out of a program that will bring the Chinese and Japanese into closer association for the protection of this highly important strategic corner of Eastern Asia. With this source of friction eliminated, there seems to be no good reason why the future should not hold a bright promise for the fulfillment of the desires of the more liberal and enlightened element in Japan to reestablish an *entente cordiale* with China.

Foreign intrigues, diplomatic pressure, self-seeking advisers, or blunders on the part of Japan, may retard the dawn of a Sino-Japanese *entente*, but such a rapprochement is inevitable. All the forces and influences of the West cannot keep these Oriental peoples estranged forever. They must stand or fall together. Their destinies are inseparable. If one falls, the other follows. At present, there might seem, on the surface, to be no real community of interest as a basis for their coming together, but if this is true, the cause is traceable to the efforts of China's western advisers who are determined to keep the two nations apart for the advancement of their own ends. These tactics, to all appearances, are heartily in accord with the policies of various governments interested in preventing these two great Asiatic peoples from combining for the advancement of their own welfare. The Chinese are invariably influenced by the power or powers possessing money and willing to lend it.

During the war, when the western powers were unable to meet China's ever-present needs, the Peking government turned to Japan for financial aid. It was the first chance presented to Japan in twenty years of scrambling for Chinese loans and concessions that had turned China's resources and transportation over to greedy European interests, in some instances, but thinly disguised instruments for political penetration. China was bound hand and foot, ready to be delivered over to the tender mercies of Russia when the time arrived for the Czar again to set in motion his annexing armies. Even after the outbreak of the war, China secretly handed over exclusive railway rights in the province of Kwangsi to France; later on Chinese gladly and willingly signed the contract with the Russo-Asiatic Bank for the Harbin-Aigun line, and entered into other questionable deals (without evoking the slightest comment or opposition on the part of western powers), thus further compromising her position and bringing closer to Japan the menace of foreign intervention in China and the possibility of a Russian invasion. So when the Japanese government permitted its independent banking groups to advance large sums to China for various purposes, such loans can be interpreted as the expression of a natural and commendable desire to strengthen the ties between the two countries and co-ordinate their forces

for the mutual protection of territories menaced by the unsettled condition of affairs in Russia. From this viewpoint of political and strategical expediency, Japan was certainly amply justified in employing every means to the end of creating a military understanding that would guarantee the future safety of both nations from western aggression, especially for the preservation of lands now absolutely essential for the future colonization of the Yellow race. Viewed from this angle, the Japanese government deserves the highest commendation, instead of criticisms, for permitting its bankers to enter in to the much discussed and condemned "War Participation Loan," of September 28, 1918, in accordance with the terms of the Sino-Japanese military co-operative agreement. Such a defensive understanding was highly imperative for the security of the two nations. As the years roll by, it will become more and more urgent. A situation may arise that will compel the western world to accept the logic of the facts as they develop. Notwithstanding the puritanical condemnation of Japan's loan policy, which attempts to prove that Japan was animated by a desire to control China through suborning her officials, this policy was undoubtedly dictated by highly efficient and justifiable political reasons. With the history of the past twenty years before us, since the time when the Chinese awoke to the realization of how easy it is to obtain foreign loans, it is rather late in the day to arraign Japan as the corruptor of Chinese official integrity.

Japan's opportunity to be friendly with China and advance her own interests came at a time when other "money-lenders" could not compete. To check Japan, the Consortium was revived by President Wilson five years after he had bitterly denounced it as a menace to the administrative independence of China. Divested of all superfluous verbiage, that is all there is to the situation. The rapprochement between China and Japan has been delayed for a time by the intervention of the western powers, who view with grave concern any further expansion of Japan's power and prestige. For the moment, this policy also suits Peking, which turns a gracious smile and a glad hand to the new money-lending syndicate and heartily endorses any program that will discredit the neighbor. That neighbor's loans were as welcome as wine only a year ago; yet now Peking is even willing to prosecute former officials for high treason and other criminal offenses, to demonstrate disapproval of the "corrupt practices." This condition cannot last. The Nicolaievsk and Hunchun incidents will not stand many repetitions. Events are so shaping themselves in Eastern Asia that a new understanding between China and Japan must ultimately come of its own accord. It is much better that the inevitable Sino-Japanese understanding receives full and sympathetic support of Great Britain and America, so that Japan and China may assume their share of the burden of preserving the peace of Asia and of liberating the West from any further obligations in settling purely Asiatic problems.

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Some Thoughts on Shantung

WITHIN a year after the Japanese entered Manchuria, the Mitsui firm sent its first experimental cargo of soya beans to Hull, and in another year had expanded the business to a point that provoked the envy of every other important firm in the Far East. In twelve years the exports passed the \$50,000,000 gold mark, and the industry has since grown to be the most important in all China. Manchuria is now prosperous, contented and happy, and if the Chinese authorities would co-operate to stamp out the roving bands of Hunghutsze and make farming attractive, Manchuria would soon be one of the premier agricultural districts of the whole world. Notwithstanding this drawback to stability and confidence, the Manchuria farmers have grown rich, the merchants have prospered, and wealth is abundant. While all other sections of China have been laid waste and ruined by internal strife, Manchuria has been blessed with comparative peace and good fortune and this fact has permitted its tuchun, Chang Tso-lin, to rise above the other poverty-stricken generals and impose his will upon the Peking government. The rise of the ex-Hunghutsze leader

through the military governorship of Manchuria to the position of virtual dictator of China, is mainly due to the extraordinary prosperity of the province brought about by Japanese development of its resources which enabled him to impose and collect revenues from a fatted community and pay his troops.

It was this fact, as much as any other, that influenced the Anfu Club to turn to Japan for guidance in the development of other parts of the country, and while the students and southern leaders were denouncing the presence of the Japanese in Shantung, we find that the then head of the Peking government (Marshal Tuan Chi-jui), the present nominal head (Premier Chin Yung-ping), Tien Wen-lieh, Fu Liang-tso, and other members of the Anfu Club, were subscribing capital to a company promoted by the Japanese to develop a beet sugar industry in the "Sacred Land of Confucius."

This factory is now being erected at Hwangtaichiao, on the outskirts of Tsinanfu, the capital of the province. Work was commenced last June and it is expected that the plant will be ready to slice next year's crop. The Fui Company, which controls the enterprise, was organized in September of last year at Peking, with a capital of Y.10,000,000 subscribed by the mentioned members of the Peking government. The president is Mr. Fu Liang-tso, while the active management is entrusted to Mr. Sokishi Hori, a Japanese sugar expert.

The province of Shantung with its sandy soil and long period of sunshine combined with a plentiful supply of cheap labor and assured irrigation from the elevated beds of the Yellow River and its tributaries, is peculiarly adapted to the growing of beets and the development of a great sugar industry. For many years, the publisher of THE FAR EASTERN REVIEW has endeavored to interest the Chinese government in the development of a cane and beet sugar industry by guarantees of a reasonable rate of interest that would encourage foreign capitalists to provide the funds for the erection of the factories and planting of the crops. Not only are many parts of North China adapted for the successful growing of sugar beets, but there are sections of South China where cane can be profitably grown and milled and a huge home industry created. Such drawbacks as are found in soil conditions are counterbalanced by the unlimited supply of the cheapest kind of cheap labor.

The raised banks of the Yellow River and the Grand Canal provide a never-ending supply of irrigating water for agricultural purposes in Shantung. Labor is there, plentiful and cheap, and the sun shines bright. All that is needed to complete the requirements for a successful beet sugar enterprise, is honest and efficient management. As to Japanese control of the province of Shantung and the hinterland, through management of the Tsingtau-Tsinan railway, this is the argument of school boys, the cry of the uninformed who permit others to guide them to ruin. THE FAR EASTERN REVIEW pointed out as far back as November, 1915, how the German or Japanese domination of the trade of Shantung could be eliminated by the expenditure of a few million dollars in digging a canal from Tsinanfu to the sea, that would permit the shallow draft China coasters to load and discharge alongside the wharves of this inland sea-port. The money that has since been wasted by the provincial authorities of Shantung in maintaining a worthless army of ragamuffins would have a dozen canals and created industries that would have provided cargoes enough to keep every one of them filled with shipping. Some day, that canal will be built, if only to save the extra cost of railway haulage to the port at Tsingtau.

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Japan Will Abolish Ship Subsidies

WHEN the Nippon Yusen Kaisha subsidy from the Japanese government expires in December, a fixed rate for carrying the mails may be substituted on all self-supporting routes. The immense increase in the volume of mail matter carried, is, however, expected to nearly equal the amount of the old subsidy. This step is to be extended to the other subsidized steamship companies engaged in foreign trade in order to place the Japanese merchant marine on an equal footing with that of America and Great Britain and to do away with the frequent cry of dis-

crimination through state subsidies. Under the ruling present circumstances, Japanese subsidized shipping operators feel that they cannot consistently protest against the American Shipping Act, which they hold is a discrimination against their vessels. The feeling against Japanese subsidized lines is especially strong where they compete with established British and American lines, particularly on the European, Australian and American runs of the N.Y.K., and as this company is now firmly established on these routes, it is thought that the subsidy can very well be superceded by a straight mail arrangement. The subsidy, however, may have to be continued on the newly-established South American routes of the Osaka Shosen Kaisha and the Toyo Kisen Kaisha.

How far this step will tend to eliminate anti-Japanese jealousies remains to be seen, for just so sure as Japanese shipping continues to do a successful business, competitors will find sufficient arguments to continue the agitation against them. They will be accused of practicing discriminations so subtle that no evidence can be obtained in order to make a formal protest, or else told that Japanese seamen are underpaid and the foreign ships cannot compete against coolie labor. If it is not one thing, it will be another. As long as public opinion is moulded by foreign language newspapers in Japan, whose business interests are injured by the increased activities of a Japanese merchant marine, there will be found sufficient new and original complaints and accusations to keep alive the agitation. However, by adopting the practices of her critics in order to diminish friction, and to demonstrate her friendship with America and Britain, Japan seems to be doing the best she can to meet these complaints.

* * *

The Trouble-Hunters

ONE wonders at times, whether the conclusions arrived at by Japanese newspaper correspondents in America or China are the result of pure cussedness, or just common-ordinary every-day-damphoolishness. The *Jiji* of Tokyo recently published a gem from its correspondent at Peking, to the effect that "the Chinese Minister of Communications had ordered the Director-Generals of the Tientsin-Pukow and Peking-Hankow Railways to start the construction of a certain railway in Chihli for the avowed purpose of affording relief for the famine sufferers," and then goes on to insinuate that this measure was taken "through the machination of a certain Power, who, under pretence of affording relief to the famine-stricken people, is urging the commencement of the railway construction in order to sell railway materials to China!"

This connecting link between the Peking-Hankow and Tientsin-Pukow railways in Chihli, can only refer to the old German Tsinan-Shuntefu project which was awarded to Japan by the Peace Conference decision, and afterwards included in the new Consortium pool. The *Jiji* correspondent does not tell us where the Chinese are to raise the \$10,000,000 required to construct this 125 miles of line from sources outside the Consortium, thus leading his readers to believe that the American government, for the purpose of selling American railway materials, is urging China to spend money that she possesses only in her imagination.

If China had the funds to construct any railway line, there are many opportunities awaiting immediate attention without picking another quarrel with Japan while the Shantung question is still awaiting settlement. The implication in the *Jiji* telegram, is, that the United States, after consenting to the Shantung decision at Paris, is now seeking to nullify its action by advising China to ignore Japan's interest in the Tsinan-Shuntefu project, and this, after Japan had advanced \$10,000,000 for the right to finance its construction. Also, that after Japan had accepted the American program in the organization of the new Consortium and willingly surrendered and pooled her rights to this line, that the American Minister is counselling the Chinese to proceed to its construction without reference to the Consortium.

This kind of "bunk" served up to Japanese readers by responsible journals, whose editors have, or ought to have, a full knowledge of the facts, only serves to stimulate an anti-American

sentiment, based upon misrepresentation. It injures Japan by—unconsciously, of course—the game of those in China who are intriguing to bring about war between Japan and America.

* * *

Japanese Treasury Notes for Railway Construction

THE Japanese government has adopted the American and British method of advertising its internal loan issues, so as to interest the small investor in the advantages of subscribing to the smaller denominations of bonds and treasury notes. In connection with the new issue of five per cent. treasury notes the private subscriber will be given preference in allotment, and the way is made easy for the public to buy by issuing the notes in denominations of Yen 25, 50, 100, and 500 and placing them for sale in the various post offices of the empire. The rate is 94.5, carrying five per cent. interest, which makes the net yield about 6.8 per cent.

The present issue amounts to Y.20,000,000, the proceeds of which are for new railway construction and maintenance. It is announced that this will be the last issue of treasury notes for this year, out of the total of Y.185,000,000 authorized by the Diet. Of this, Y.110,000,000 have been issued, and there is still to be raised Y.3,435,000 for public works in Taiwan, which is to be advanced by the Bank of Taiwan, and another Y.3,565,000 is to be advanced by various municipalities for the high school fund. The balance of Y.48,000,000 is not urgently needed and will be issued as required some time next year.

* * *

Portland Out for Business

THE Port of Portland is determined to obtain its share of the Far Eastern trade, and has sent its foreign traffic agent,

Mr. W. G. Tait, to open an office in Kobe for the purpose of increasing shipments through the new and up-to-date harbor that has been created on the banks of the Willamette by the energetic people of the City of Roses. The new office of the Port of Portland for the district of Japan and North China will be located at 91 Sakaye-machi, Itchome, Kobe.

Seattle's Growing Asiatic Trade

SEATTLE, September 27.—The number of ships making regular ports of call in Seattle and Puget Sound ports on August 1, 1920, was more than double that of August 1, 1914, and the cargo capacity was likewise doubled, and by January 1 the comparative figures will be:

Ships—1914	Ships—1921	Cargo Capacity—1914	Cargo Capacity—1920
65	164	560,500 tons	1,600,000 tons

With the commerce of the Pacific growing so rapidly that even the eastern section of the United States is realizing that America's commercial life lies on the western ocean instead of on the Atlantic, Seattle has prepared herself for the day when the great increase in commerce indicated above grows by still greater leaps and bounds.

Coupled with a marked advantage in distance are the terminals of the Port of Seattle, which are regarded as the finest public port improvements in the United States, the Port Commission having spent more than \$8,000,000 in six groups of public utilities with special attention being paid to the handling of Oriental cargoes such as Oriental oils, silks and other products from the Far East. These terminals are open to all commerce, at all times, on equal terms, while in other ports steamship companies are required to pay rental for piers on a certain amount to get preferential assignments or a certain amount for berthage. A ship can sail into the harbor at Seattle from any place in the world and can secure a berth at one of these publicly operated docks without any cost whatsoever for berthing.

Seattle has the advantage of five transcontinental railroads,

resulting in a great volume of overland shipping for export and also operating to the advantage of Seattle as the receiving port for Oriental goods to be distributed throughout the United States. Raw silk and rubber are received in larger quantities in Seattle docks from the Orient than at any other American port. Seattle is also the distributing centre for large quantities of tea, rice, antimony, and tin, and to the Orient Seattle exports great quantities of cotton, \$61,000,000 worth of this commodity being distributed in 1918. With the coming of the war and a shortage of food fats the importation of Oriental oils increased by leaps and bounds. Every steamer from the Orient began bringing in oil either in cases, barrels or bulk in the steamer's deep tanks, and the largest oil handling terminal in the world, the East Waterway Dock and Warehouse Company, was built in Seattle. The wooden and steel tanks have a capacity of 5,502,000 gallons of oil and can load sixty tank cars at one time.

A comparison of the value of imports and exports between Seattle and San Francisco to and from Asia for the fiscal year 1919 shows a trade balance of \$237,182,828 in favor of the district in which Seattle is the headquarters, the district doing a total business of \$446,254,593 in imports and exports that year.

Seattle is the nearest American port to China, Japan, Siberia, the Philippine, Alaska and those countries are the most potential foreign markets remaining.

Seattle's trade with Japan has for years been double the commerce it has had with all other countries both as to exports and imports, with the exception of the fiscal year of 1919 when greater imports were received from the Straits Settlements than from Japan.

Ten Chinese, all of them speaking English fluently and in dress and manners typical college men, are in Seattle to enroll in the schools of business administration, fisheries and education at the University of Washington. The China Club of Seattle, which is looking after the Chinese students, reports that 450 young people will arrive from China to enroll in American colleges this fall.

Seattle's foreign and domestic commerce for August, 1920, totaled \$45,657,665, according to Port Warden Fred M. Lathe's report. The figures show that substantial gains over the corresponding month in 1919 were made in imports. Most worthy of mention is the immense gain of the Philippine export trade, which in August, 1919, totaled \$456,619, and in August, 1920, increased to \$1,135,377, or gained approximately 150 per cent. Imports, also increased from \$517,195 in August, 1919, to \$607,670 during last month. Seattle's total domestic imports and exports last month were \$22,472,439, a gain of \$2,039,230 over August, 1919. Her foreign imports and exports totaled \$23,185,226, showing a loss of \$27,291,784 over August, 1919.

FOREIGN IMPORTS.

From—					
Australia	...	...	...	...	\$ 206,886
Britain Columbia	...	...	...	...	1,400,566
East Indies	...	...	...	...	167,239
Great Britain	...	...	...	...	220,693
India	...	...	...	...	463,314
Germany	...	...	...	...	32,398
Orient	...	...	...	...	12,915,023
South America	...	...	...	...	9,023
					<hr/>
					\$15,415,142

FOREIGN EXPORTS.

To—					
Australia	...	...	...	...	\$ 30,478
Britain Columbia	...	...	...	...	872,143
East Indies	...	...	...	...	136,662
France	...	...	...	...	—
Great Britain	...	...	...	...	198,745
Holland	...	...	...	...	25,148
India	...	...	...	...	3,057
Orient	...	...	...	...	6,394,138
Siberia	...	...	...	...	—
South America	...	...	...	...	109,713
					<hr/>
					\$7,770,084



O SAKANA SAN

(The Honorable Mr. Fish)

His International Political Importance
in the Okhotsk Sea

A Sidelight on Japanese-American
Corporation in the Creation of
a Great Industry

A FISH story is not necessarily a fishy one. This is a fish story. Not many years ago, the Republican voters of the fashionable section of a large American city elected a "silk-stocking" aristocrat to represent their district in the State Senate. His name was Percival Marlborough Fish. He was thoroughly imbued with his own importance, and worried the Senate by "butting in" on all discussions, talking his colleagues to sleep or driving them to the cloak room for the traditional legislative refreshment. He finally originated and presented a bill for the protection of the public health, which, he declared, was jeopardized

on page two, line five, and page three, line eight, that we delete the word "poultry" and insert the word "fish."

Senatorial dignity relaxed and in the roar of laughter that shook the hall, the "Drawn Poultry Bill" went down to defeat and the Honorable Mr. Fish into political oblivion.

With this introduction, we can pass on to another story of the Honorable Mr. Fish and his relation to international politics in the Far East. Paraphrasing the immortal words of the labor representative, if we delete the legal and political wording of the diplomatic notes exchanged between America and Japan over Saghalien, Nikolaievsk and Okhotsk Sea, and insert the word "FISH," we will begin to have a very clear idea of the reasons

by the old standing custom of exposing fowl for sale in the public markets without first being drawn and cleaned. It became known as the "Drawn Poultry Bill" and aroused much opposition from the farming, cold storage and meat dealers associations. It passed the committee, was reported out on the floor of the Senate, and, when it came up for discussion, the aristocrat in politics arose to expatiate upon and defend its admirable qualities. He expatiated for two hours in his ponderous methodical way without getting anywhere or coming to the point. The Senators, bored to death, were compelled to remain until the roll was called. The hands of the clock pointed to a few minutes before the usual adjournment hour, with the orator only half-way through his speech. At this juncture, a "rough neck" Senator from one of the laboring districts arose, and catching the eye of the Chair, said in a rich drawling brogue: "Mr. Speaker! I move that the bill be accepted and passed unanimously, but referring to the printed copy of the bill)



Unloading the Catch



The Net Hauled Home

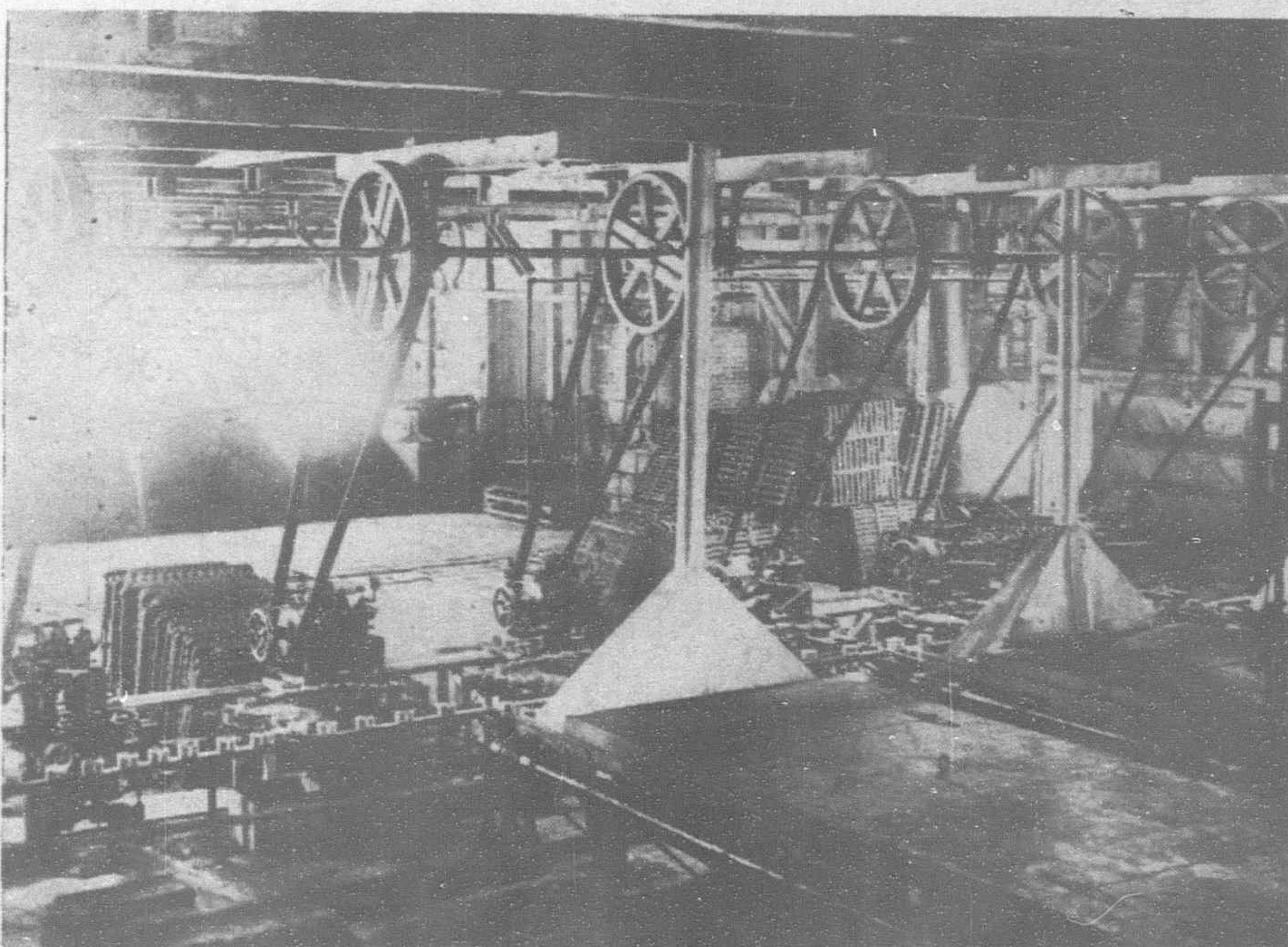
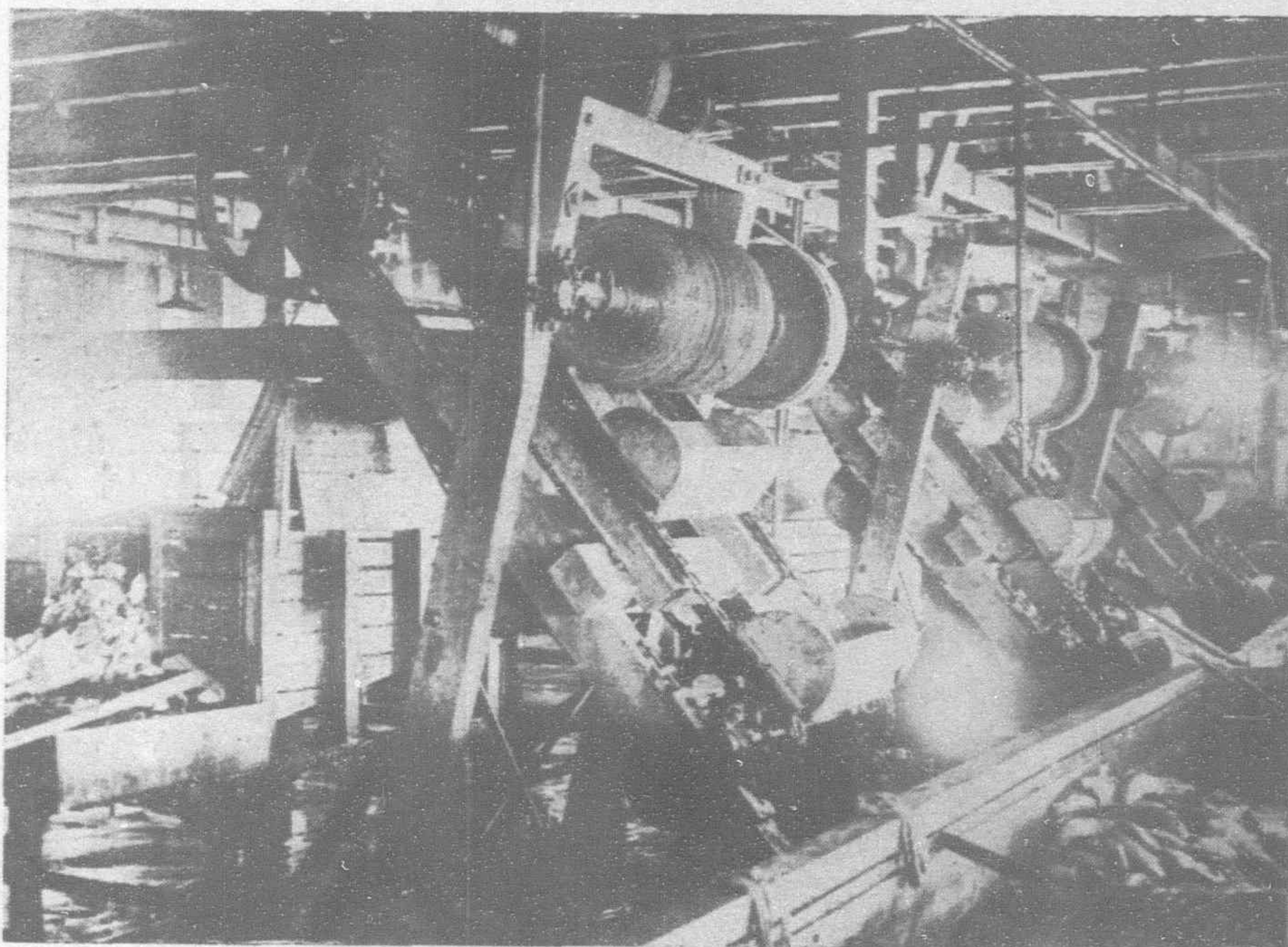
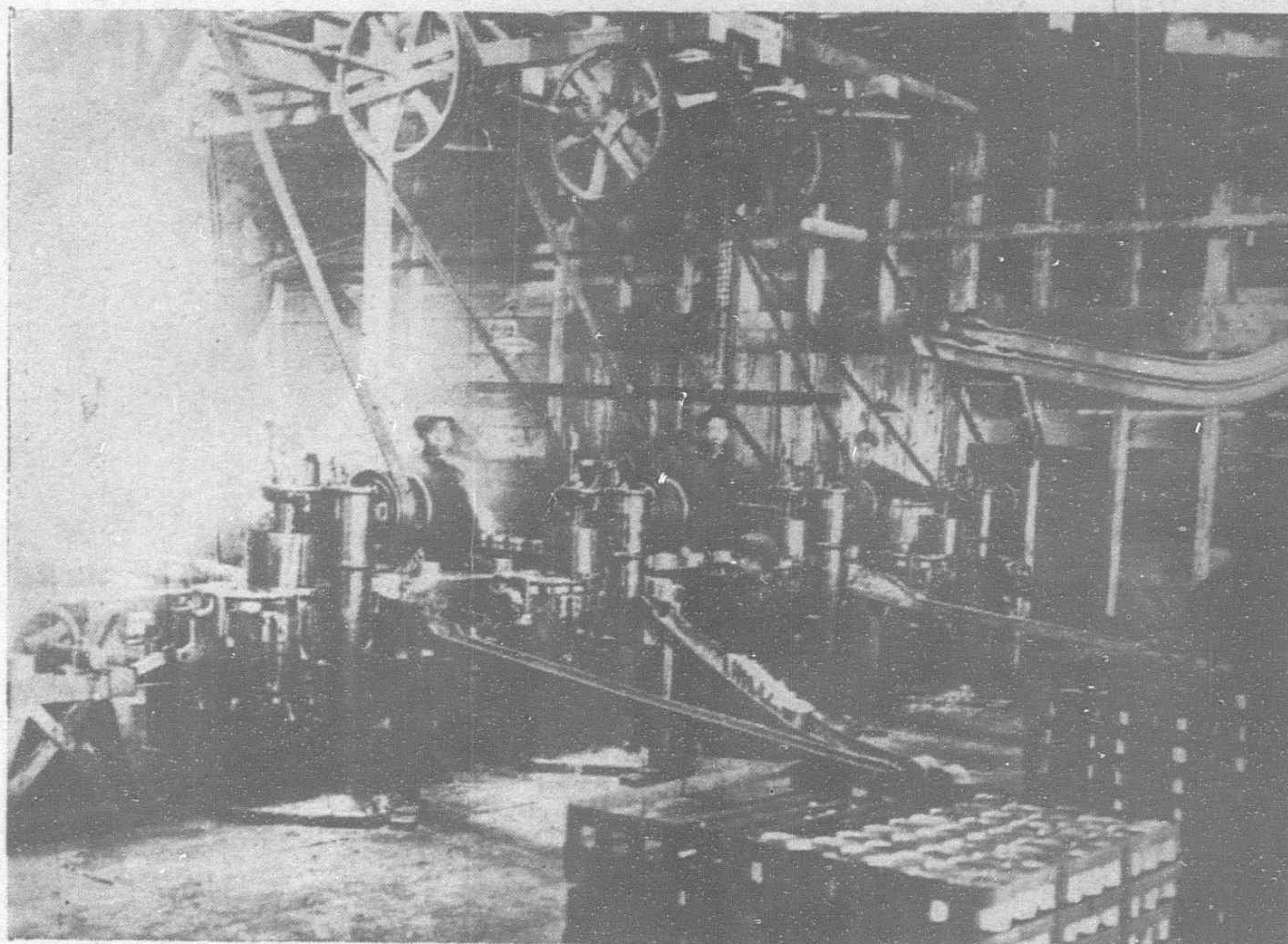
underlying Japan's activities in this part of Eastern Asia.

Japan's first duty is to Japan. Like every other nation, human being, animal, bird, or insect, Japan follows the universal instinct of self-preservation. One of its fundamental laws is to protect and preserve a food supply. Now, Japan, unlike the American, Anglo-Saxon and other favored white peoples, is denied the benefits of a wheat and meat diet. There are no vast plains, lush river bottoms or hillside grazing lands in the tight little empire for the raising of vast herds of cattle or sheep, at least not sufficient to supply a daily meal to 57,000,000 hungry inhabitants. Beef is dear and scarce, and mutton dearer and scarcer. So the Japanese subsist on fish and rice. The lack of land has driven them to the sea for an existence. Here they have developed their fishing industry into one of the most important and profitable of the world, thus relieving the meat-eating nations from their competition in the purchase of essential food.

Anything that interferes with or menaces the constant supply of this vital element in the national economy, must be viewed with immediate and grave concern by those having the welfare of the empire in their keeping. The rulers of Japan have never lost sight of this fundamental requirement in the daily life of the people, and at all times, under all changes of cabinets and governments have consistently pursued a policy calculated to conserve and protect the staple food supply. It was one of the few benefits that the Japanese people derived from their immense sacrifice in the war with Russia.

The Portsmouth Peace Treaty, Article XI, provided that "Russia engages to arrange with Japan for granting to Japanese subjects rights of fishery along the coast of the Russian possessions in the Japan, Okhotsk and Behring Seas." In pursuance to this article, a Fishery Convention was entered into between Russia and Japan in 1907 by which Russia conceded to Japanese subjects fishery rights within her territorial waters of Asia, with the exception of rivers and inlets; authorizing Japanese subjects to take and prepare fish and other aquatic products in specially designated lots, which would be leased to them and Russian subjects alike at public auctions. It furthermore stipulated that Russian and Japanese subjects should be treated without any distinction in matters relating to fishery industry in general. The convention was removed in 1919 and is still in force. In this manner Japan secured extensive rights and interests in the Asiatic coast of Russia that give her subjects full any equal rights with those of Russia in the fishery industry of the seas adjacent to the Russian Asiatic territories.

Japanese capital and enterprise embarked eagerly in the new ventures which opened up such a great source of cheap sea food for the people, and by 1919 the number of Japanese fishing lots along coast of the Russian possessions in the Japan, Okhotsk and Behring Seas, reached a total of 251, increased to 309 up to September of this year. The products of these fisheries in 1919 exceeded ¥29,000,000 (\$14,500,000) in value, and over 16,000 men and 447,000 tons of shipping were engaged in the industry. The importance of conserving this food supply against the destructive tactics of the Bolsheviks is as vital to the life of Japan as though a Bolshevik uprising in Canada had destroyed the wheat crops of the northwest and menaced the staple food supply of the United States. There is absolutely no difference, except that Japan is face to face with a reality. The Bolsheviks have destroyed and ruined nearly all the Russian fisheries in this



KAMCHATKA SALMON CANNERIES

Interior of one of the American Equipped Tsutsumi Canneries

KAMCHATKA SALMON FISHERIES



Boxed Canned Salmon in Storehouse



Fish Sorting

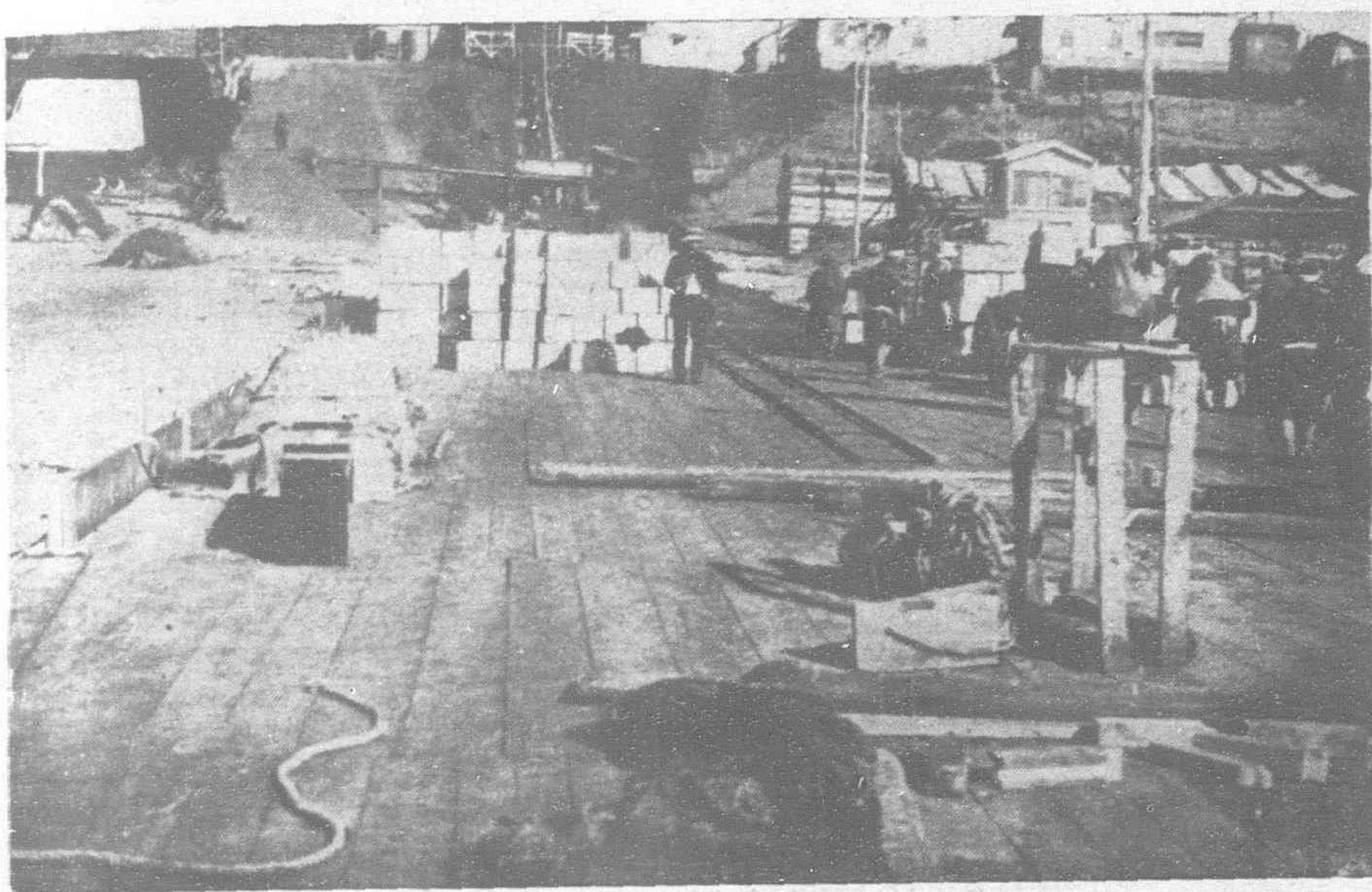


Cleaning



Scaling the Fish

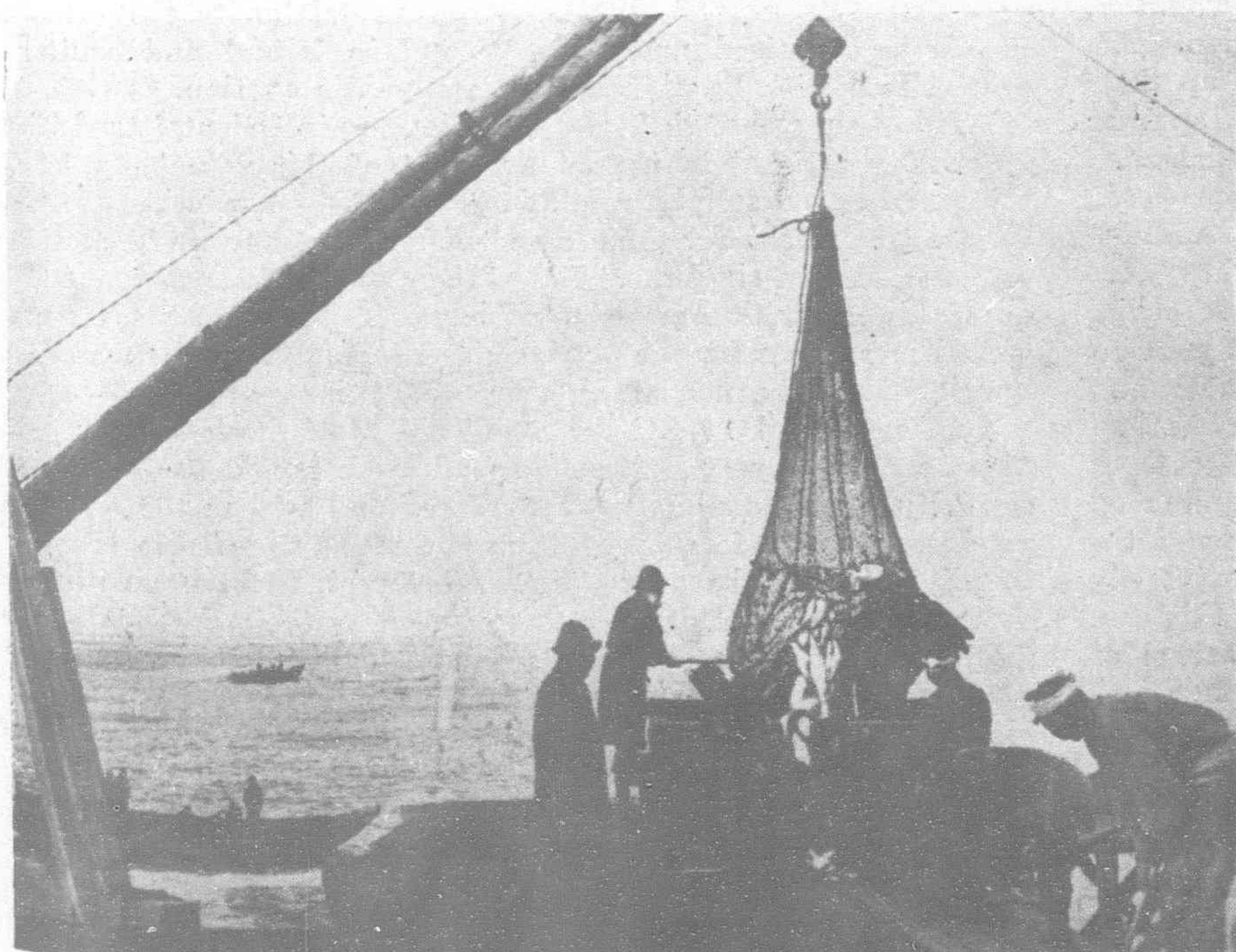
KAMCHATKA SALMON FISHERIES



Boxed Salmon on Dock Carried from Cannery by Link Belt Conveyor



Deep Sea Net Fishing



Unloading the Catch onto Link Belt Conveyor

region and interfered with the legitimate treaty rights of the Japanese fishermen who bought and paid for their privileges. Before commenting on the political aspects of this situation, it is better that actual official figures be given which will help to convey an idea of the importance of this industry in the economical life of Japan and the world. The tables¹ show in detail the number and distribution of the Japanese fisheries in the Russian territorial waters, rental paid for them during the years 1919-20, their products in the former year, and the tonnage and men employed.

A comparison of the figures with those of the fishing industry in Japanese waters shows that the catch from the leased Russian lots is vastly more valuable and important to Japan and the world as a food supply than the home industry. The figures show that the Japanese catch of salmon² is valued at over Y.21,006,466, of which nearly Y.12,000,000 is canned on the spot for home and export consumption. In the short period since Japan has been active in these waters a large canning industry has been created, and in this, as in other important lines, American canning machinery manufacturers have had a monopoly of supplying the machinery. Like the soya bean and oil industry in Manchuria, it is another typical instance where Japanese capital and enterprise co-operating with American engineering practice have built up a great industry and helped to develop an important source of food supply which had remained unproductive under the incubus of Russian administrative corruption. There are now 23 Japanese canning enterprises in operation along the Russian Asiatic coast. American capital, through the well-known firm of Sale and Frazar, is also interested in some of the most important of these factories.

Now when the Bolsheviks, after destroying their own valuable Amur properties and murdering the fishermen, began to turn their attention to the properties and lives of the subjects of Japan, the government very properly stepped in and took the necessary steps for the protection of their acquired rights. Unfortunately, however, for the lives of several hundred peaceful Japanese, this action was not taken in time to prevent their massacre. Through the jealousies and suspicions of the Allies in the ill-fated and unsavory Siberian expedition, a policy of watchful waiting was imposed upon Japan in those sections of Asia where her interests were most vitally affected by the spread of terrorism. A brief review of the facts leading up to the Nikolaievsk massacre and the Japanese occupation of Saghalien and other strategic points in Eastern Asiatic Russia will help to explain the present situation, and throw light on the reason why the American Note to Japan and the latter's reply has not been given further publicity. It serves no good purpose to go back to the initial stages of this ill-advised adventure, except to state that the dispatch of an American army to Siberia was strongly opposed to the highest technical military advice in the United States. At the outset, President Wilson also adhered firmly to the belief that if intervention was necessary, Japan alone could handle the situation. The reasons for this change of attitude, and the subsequent insistence on joint Allied intervention, will probably remain a secret until someone with an inside knowledge of the facts cares to reveal them. It was not, however, until July, 1918 that Japan sent an expeditionary force into Siberia in agreement with America. This was followed by Bolshevik activities in the neighborhood

¹For tables see pages 603²For notes see page 604



City of Petropavlovsk on Kamchatka

of Nikolaievsk who, supported by the Austro-German prisoners, began to menace the peace of that region. Impelled by the necessity to protect the lives and property of her subjects, and in compliance with the request of residents of city, as well as the British consul, on October 9 Japan landed a small number of marines at Nikolaievsk and restored order there, later substituting the marines with a detachment of troops. When Admiral Koltchak came into power this detachment was reinforced by Russians, with whom the Japanese troops maintained most amicable relations.

The fall of the Koltchak government in the early part of the present year again gave Siberia over to chaos. The condition in the pre-Amur regions became more and more menacing as Bolsheviks control over the territory tightened. The Japanese wireless station in the vicinity of Nikolaievsk was bombarded on February 5, and this, together with the tense situation created by the lawlessness of the Partisans, led the Japanese government to despatch reinforcements to Nikolaievsk. The execution of this decision had to be postponed owing to the difficulty of transporting troops over the ice-bound sea. As the relief of the city could not be accomplished under the circumstances, an armistice was concluded on February 28 between the contending forces at Nikolaievsk. The Partisans, who included many Chinese and Koreans, disarmed the Russian White Guards, giving a pledge that they would be treated according to the laws of warfare. Once disarmed, the Guards were butchered without mercy. The Japanese were warned that the same fate would be meted out to them on the anniversary of the revolution. The Partisans then demanded that the Japanese troops give up their arms. Their refusal to comply led to the attack on the Japanese Consulate and barracks on March 12, which were stoutly defended for the ensuing five days. On March 17 the Partisans proposed a truce which was accepted by the surviving Japanese soldiers, over 120 in number. After laying down their arms, they were thrown into prison where they were murdered in a revolting manner. It is asserted by the Japanese, that a Chinese gunboat anchored in the river, also turned its guns on the Japanese, and assisted in the destruction of their properties. A joint investigation commission is now on the ground to determine the truth of this statement. Japanese reinforcements reached Nikolaievsk on June 3 to find the city reduced to ashes. Upon learning of the approach of the Japanese forces, the Partisans had completely destroyed the city, after dismembering the bodies of the Japanese prisoners and casting them into the river. The indignation of the Japanese people at this horrible news knew no bounds and the cry for punitive measures became universal. The government in such a situation was compelled to take action which was published in an official announcement on July 3:

"Between March 12 and the latter part of May, nearly 700 Japanese men, women and children, including the men and officers of the garrison and the consul and his family were massacred by the Bolsheviks in the most revolting cruel manner. Faced by such an event, the Japanese government felt it



Inner Harbor of Petropavlovsk

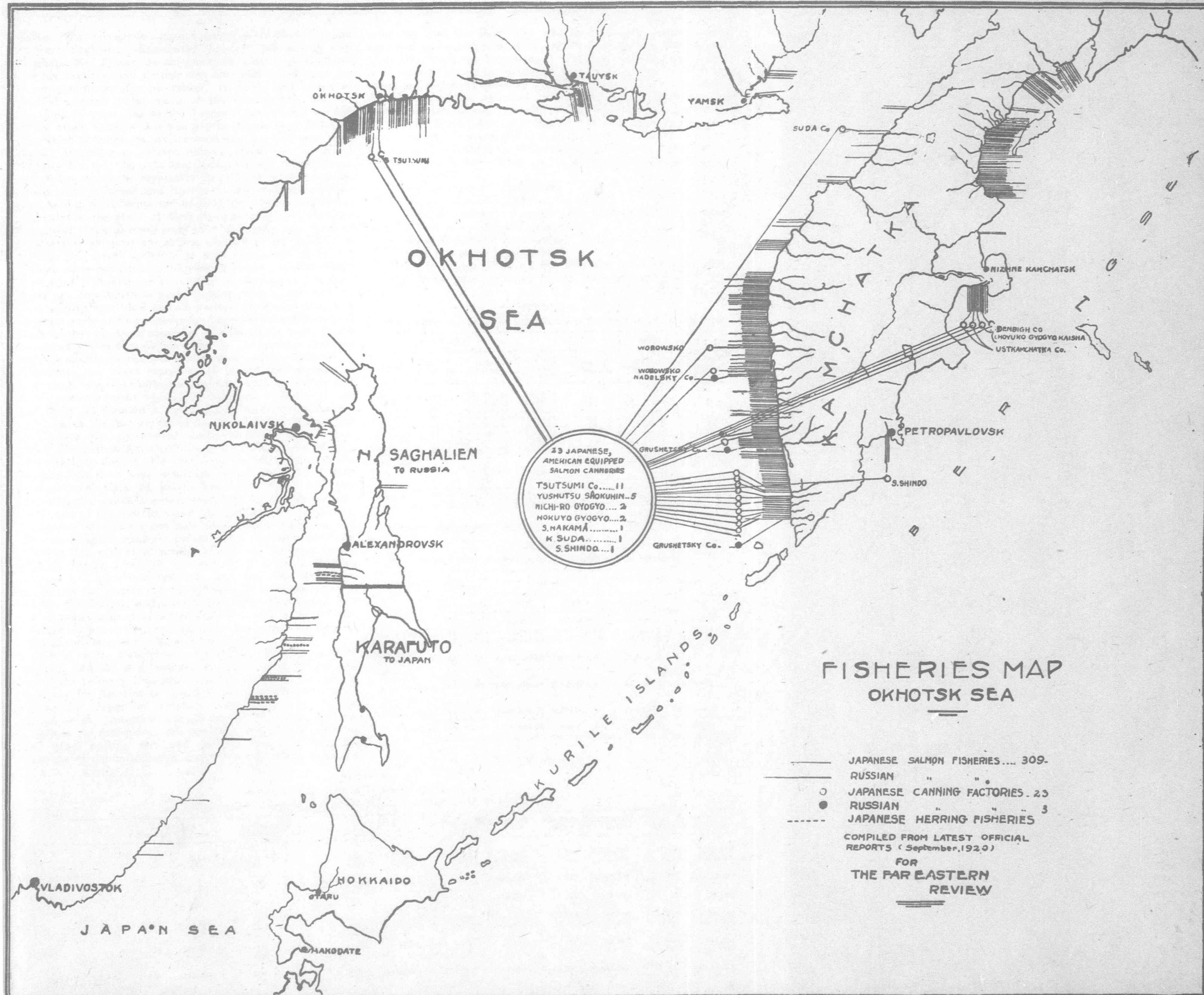
incumbent upon it to take steps to uphold the honor and prestige of this country, but, in the absence, at the moment, of any responsible government to whom representations might be made, the Japanese government has been at a loss as to the proper line of action it should follow to achieve its end. In these circumstances, the Japanese government has come to the decision, pending the establishment of a legitimate government, and a satisfactory settlement of the present affair, to occupy such points in the province of Saghalien as it may deem necessary.

"Having regard to the complete evacuation of the Zabaikal provinces by the Czecho-Slovak troops, the Japanese government has decided to withdraw its troops from these regions in conformity with its repeated declarations.

"The districts round Vladivostok, however, stand on a different footing. Not only is the menace from those quarters against Korea still present, but the situation tends rather to be aggravated. Moreover, there is a large number of Japanese residents in the neighborhood. And Habarovsk constitutes a point of strategic importance on the way to the province of Saghalien. In view of these considerations, the Japanese government finds itself compelled, until such time as peace and order shall have been completely secured, to maintain a sufficient number of troops in these regions. Later on, as the Japanese-American fisheries and canneries located in the Okhotsk littoral were manaced by the continued depredations of the Bolsheviks: an American citizen (Mr. E. W. Frazar, of the firm of Sale and Frazar, Ltd.) representing Japanese, American and British capital interested in these ventures, called upon the Japanese government to provide the necessary protection to the valuable properties acquired under treaty and in lawful and equitable competition with Russian subjects at public auction.

This firm, one of the American pioneers in Oriental trade, has materially assisted in the development of this valuable asset to the world's food supply, and at the same time has blazed the way in Asiatic Russia for American can-making machinery and the use of American tin-plate. All of the great Kamchatka canneries are equipped with American machinery. The firm also acts as the selling agents for the products of the consolidated Kamchatka canning interests, marketing over 800,000 cases of tinned salmon annually, valued at \$10,000,000. This high grade salmon goes principally to Great Britain. In addition, about 75,000 tons of specially salted salmon is prepared for and sold in the Japanese market, where it forms a most important and welcome addition to the food of the poorer classes. Any interference with this industry that would deprive this element of their customary diet would bring about most serious consequences in Tokyo and other large centres. The Kamchatka canning industry represents over Yen 30,000,000 investment in buildings, machinery and gear, and gives employment to over 25,000 men. Out of 310 fishing concessions worked on the peninsula, 237 are Japanese, acquired and paid for in open competition with Russian subjects at the annual auctions held at Vladivostok.

When the Bolsheviks finished their bloody work at Nikolaievsk and the Amur delta, they proceeded along the coast to mete out the same fate to the other fishing communities and



properties. This necessitated instant action on the part of Japan in Northern Saghalien. Kamchatka, however, was a long way off. Perhaps Mr. Frazar, as an American citizen, should have ignored his Japanese and British associates and called upon the American government for protection. It would had added to the present general joyful mood of the nations. He did the proper thing by appealing to the Japanese government for the protection of an industry that was within its sphere of influence and in which so much of its national capital and men were employed. According to current opinion, here was a grand opportunity for the "imperialistic land-grabbing militarists of Japan" to live up to the reputation created for them by others, to extend their influence and borders to the uttermost eastern point of Asia in direct contact with the United States in Alaska. Here would be the proof of their designs upon the American continent and plans to consolidate their hegemony over Eastern Asia. Did they jump at the chance and forthwith dispatch an army corps and naval squadron to take possession? They did not. These much criticized "militarists of Japan," had evidently absorbed some Wilsonian or Bryanistic ideas, for the American capitalist and this Japanese partners were politely informed, in so many words, that "they had no business in Kamchatka, that the Japanese army and navy had more important things to attend to, than protecting the properties of subjects in such far-off frozen altitudes; that they do not desire to take any step that was certain to be misinterpreted, and create embarrassing complications, and, therefore, the wisest course would be for the fishermen to drag in their nets, dismantle their plants, pull up stakes, and "beat it" back to Japan where they belonged. "And that was the end of it. It required a special Japanese expert to lay the exact figures of the importance of the great industry they had created before the government, and explain the utter impossibility of dismantling \$15,000,000 in canning plants and freighting them back to Japan. He proved to the satisfaction of the government that there were not ships enough for many months to carry out their idea of scuttle and scoot. Faced with this responsibility, the Japanese government, very reluctantly, acceded to the request of the American and his associates for protection. So a Japanese detachment has gone to Northern Saghalien and others have occupied strategic points in the maritime province, while a war-ship with other smaller vessels are wintering in the Kamchatka waters, awaiting the time when a stable Russian government will come into existence and pay the claims for indemnity for the wanton, brutal butchery of over 700 Japanese subjects at Nikolaievsk, and provide guarantees that Japan will remain in the enjoyment of her treaty rights and in the fruitful exploitation of properties acquired after due process of Russian law and payments into the Russian treasury.

Japan is on the Okhotsk Sea for FISH. The fishing there is excellent, and she is determined to enjoy her privileges and safeguard the primary food supply of her 57,000,000 people. It is as wrong for America to interfere in these problems, as it would be for Japan to interfere with our measures in the Caribbean for the protection of our welfare. We had no business in Siberia in the first place. We have less reason to interfere at present after pulling out and leaving Japan to face the consequences of our misdirected diplomacy and thinly disguised

sympathy with the Bolsheviks, who amongst other bacteria, are supposed to cancel somewhere behind their hirsute ornamentation, the "Germ of Democracy." The germ may be there, but it is safer to accept the definition that "a Bolshevik in a brain storm entirely surrounded by whiskers. Again, it is much better for Americans to approach this whole controversy from the piscatorial standpoint. Instead of long-winded American Notes to Japan, thinly disguised appeals to the labor vote, the correspondence between the diplomatic heads of the two nations might be abbreviated to the following concise statement of facts:—

Colby to Uchida: "What are you doing up there in Saghalien, anyhow?"
Uchida to Colby: "Just fishing."
Colby to Uchida: "Catching anything?"
Uchida to Colby: "Sitting tight, waiting for a big bite. What are you doing, just now?"
Colby to Uchida: "Also fishing."
Uchida to Colby: "Any luck?"
Colby to Uchida: "Just a few November suckers, that's all."
Uchida to Colby: "Better change your bait, old man!"
G. B. R.

TABLE I.
FISHERIES MAINTAINED BY JAPANESE SUBJECTS DURING THE YEARS 1919-1920.

1919				1920		
Term	No. of Fisheries	Rental (Rouble)	Average Rental (Rouble)	No. of Fisheries	Rental (Rouble)	Average Rental (Rouble)
1915-1919	30	134,709.00	4,490.30	—	—	—
1916-1920	41	182,674.00	4,455.46	41	182,674.00	4,455.46
1917-1919	21	114,748.00	5,464.19	—	—	—
1917-1921	28	317,632.00	11,344.00	28	317,632.00	11,344.00
1918-1920	26	1,150,853.00	44,263.57	26	1,150,853.00	44,263.57
1918-1922	31	1,384,806.00	44,671.16	31	1,384,806.00	44,671.16
1919-1921	33	1,369,671.00	41,505.18	33	1,421,571.00	43,077.90
1919-1923	22	2,065,740.00	93,897.27	22	2,065,740.00	93,897.27
1920-1922	—	—	—	35	197,330.00	5,638.00
1920-1924	—	—	—	40	704,674.00	17,616.85
1919	19	418,366.00	22,019.26	—	—	—
1920	—	—	—	53	174,200.00	3,286.79
Totals	251	7,139,199.00	28,443.02	309	7,599,480.00	24,593.78
				Increase	Increase	Decrease
1920 totals compared with 1919 totals				58	460,281.00	3,522.61

TABLE II.
DISTRIBUTION OF THE FISHERIES DURING THE SAME YEARS.

Location	No. of Fisheries		Rental		Average Rental	
	1919	1920	1919	1920	1919	1920
			(Rouble)	(Rouble)	(Rouble)	(Rouble)
Japan Sea	11	18	50,651.00	74,776.00	4,604.63	4,154.22
Saghalien	6	10	29,662.00	47,152.00	4,943.33	2,966.20
Kamchatka: Okhotsk	46	57	1,437,198.00	1,344,482.00	31,243.43	23,587.40
Western Coast of Kamchatka	113	132	1,991,482.00	2,442,500.00	17,623.73	18,503.78
Eastern Coast of Kamchatka	75	92	3,630,206.00	3,690,570.00	48,402.74	40,114.86
Totals	251	309	7,139,199.00	7,599,480.00	28,443.02	24,592.78

TABLE III.
PRODUCTS OF THE FISHERIES DURING THE YEAR, 1919.
(Denominator: Quantity=Per 1,000 Fish, or Per 1,000 Kwan; Price=Yen)

	Japan Sea		Saghalien		Okhotsk		Western Kamchatka		Eastern Kamchatka		Total	
	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
Salmon:												
Salted.....	8	5,600	—	—	2,595	1,816,500	3,970	2,779,000	3,709	2,596,300	10,232	7,197,400
Canned.....	—	—	—	—	142	189,333	1,135	1,513,333	354	472,000	1,631	2,174,466
Silver Salmon:												
Canned.....	—	—	—	—	199	371,467	3,266	6,096,533	2,232	4,166,400	5,697	10,634,400
Salmon Trout:												
Canned.....	—	—	—	—	—	—	4	10,000	46	115,000	50	125,000
Trout:												
Salted.....	121	22,683	—	—	—	—	23,598	4,424,625	1,863	347,437	25,572	4,794,750
Canned.....	—	—	—	—	66	35,750	5,625	3,045,875	1,767	957,125	7,458	4,039,750
Herring:												
Fertilizer.....	238	148,750	79	49,375	2	1,250	45	28,125	81	50,625	445	278,125
Fresh.....	—	—	526	736	—	—	—	—	—	—	526	736
Total:												
Per 1,000 Fish.....	129	177,038	526	50,111	3,002	2,410,430	37,598	17,870,366	9,961	8,654,262	51,216	29,244,827
Per 1,000 Kwan.....	238	—	79	—	2	—	45	—	81	—	445	—

TABLE IV.

CRAFTS AND MEN EMPLOYED BY THE FISHERIES DURING THE YEAR 1919.

Steamers	462	Capacity: 397,677 tons
Sailboats	285	.. : 49,797 ..
Total	747	.. : 447,474 ..
Fishermen and Helpers	13,600	
Crew of the Sailboats and Helpers	2,500	
Total	16,100	

*The 1920 salmon returns are not yet all in, but the total is roughly estimated at 600,000 boxes (350,000 boxes pink; 100,000 boxes silver salmon, and 150,000 boxes miscellaneous), a decrease of about thirty per cent. under last year's catch. The bulk of this output is destined for Great Britain. By the end of September some 150,000 boxes will have been shipped and other shipments will follow in the course of the next month.

The 1919 Japanese output is the result of the operations of twenty-three factories viz :

S. TSUTSUMI operating 8 factories on the Western Kamchatka coast, 1 on the eastern coast and 2 at Okhotsk, with a total output of 306,429 boxes (box contains 48 one pound cans).

YUSHUTSU SHOKUJIN KAISHA (Export Provisions Manufacturing Co.) operating 5 canneries on the west Kamchatka shore, with an output of 100,631 boxes.

NICHI-RO GYOGYO KAISHA (Russian-Japanese Fishery Co.) operating 2 canneries on the eastern Kamchatka shore and one on the western shore, with an output of 102,569 boxes.

HOKKAI GYOGYO KAISHA (North Sea Fishery Co.) operating two canneries on the eastern Kamchatka shore with an output of 134,898 boxes.

S. HAKAMA operating one cannery on western Kamchatka shore with an output of 7,576 boxes.

K. SUDA operating cannery on western Kamchatka shore, output 940 boxes.

S. SHINDO operating cannery on eastern Kamchatka shore, output 650 boxes.

HAKUREI GYOGYO KAISHA operating cannery with 300 box output.

RUSSIAN CANNERIES: Two belong to the Gruchetsky Company and one to the Nadelsky Company all on the western Kamchatka coast having an average output of 30,000 boxes.

Russian Expedition to Yakutsk District, Siberia

IN the Russian Cooperator for July, the expedition of the cooperative unions into the Yakutsk district, Siberia, is described as follows:

One of the most interesting features of recent developments in cooperative activity in the far east of Siberia is the expedition to the Yakutsk district, which is being sent from Vladivostok. The initiative is with the Central Board of the Siberian Union of Cooperative Unions, which is sending a steamer to the coast of the Okhotsk Sea. This steamer is taking a cargo of 1,000 tons of manufactured goods, which will be distributed in the Yakutsk district.

An explanation as to why the cooperators are anxious to penetrate again into the enormous basin of the River Lena is hardly necessary. The scattered population of the country have imported very little from the civilized world during the last several years. A few years ago, when quietness prevailed in this most remote part of Russia, the cooperative unions were supplying their depots regularly with manufactured goods and collecting furs and other raw materials from their members. The River Lena, which runs for 3,000 miles across a huge territory, was the only means of communication, as the goods were always sent by river. The starting point was somewhere near Lake Baikal.

This route being endangered by the political unrest and the civil war, the organizers thought it better to get into touch with the population of the Yakutsk district through the small natural ports of Ajan and Okhotsk, on the Okhotsk Sea. This unusual route is not one of the best adapted for the trade. But the Siberian cooperators are determined to overcome all difficulties. Special investigations made last spring by the representatives of the board showed the great necessity of supplying the population

with manufactured goods. The scarcity of essential commodities is very acute in the Yakutsk district, which in itself is a huge country, measuring over 1,500,000 square miles. The decision to send such an expedition with manufactured goods is, according to the latest information from Vladivostok, being put into practice very actively. A steamer loaded with cooperative goods was dispatched at the end of July to Ajan and Okhotsk. From these places the goods will be transported by land to the River Maja, a tributary of the River Aldan, which itself runs into the River Lena. The distance between Ajan and Maja is over 200 miles, and there are no roads of any description. All this district is covered with a dense forest, which can be crossed only by means of a path known to the hunters and natives of the country. Arrangements have been made with the cooperators at Yakutsk that they should be provided with several hundred reindeer, in order to effect the transport through the forest. This part of the expedition will be the most difficult, but the cooperators have taken all possible steps to insure its full success. From Maja the goods will be sent down the River Aldan, and thence by the River Lena to Yakutsk. All the necessary river tonnage is being provided in accordance with arrangements made with the Yakutsk cooperators.

Ajan and Okhotsk and all the region round the Okhotsk Sea are very important districts. They are well known for their unlimited resources in fish and furs. For years past endeavors have been made to develop these industries, and now again, after a period of inactivity due to the general collapse of economic life in Siberia, the region of the Eastern Sea is showing signs of reawakening. The Siberian cooperators, well acquainted with the requirements of the country, have prepared a new scheme of sea fisheries and development of the fur industry. Several depots will be established on the coast between Kamchatka and the River Amur, which will be supplied with instructors and necessary staffs to deal with the hunters and collect their products. The same depots will supply the population with implements and general manufactured goods in the same way and on a similar basis as is done in other Siberian districts where the co-operators are actively pursuing their work.

Japan in Saghalin

If Japan wants permanent possession of the barren island of Saghalin, there should be no difficulty in negotiating a formal change of sovereignty with Russia when a stable government is formed at Moscow.

Japan's present action in seizing Russia's northern part of the island is not menacing. Although Washington does not look favorably upon Japan's forceful procedure, there is no reason why the American government should not advise Russia to let the Japanese remain in possession, once Russo-Japanese relations enter upon peaceful ways.

Saghalin's geographical position brings the island naturally within the limits of the Japanese archipelago. It was Japanese explorers who discovered Saghalin was an island and not a peninsula. The fact that this correction was not made until 1809 shows how little interest has been paid to the territory. The Russians used the island almost solely as a penal colony for Siberian convicts.

In 1875 Japan ceded her southern part of the island to Russia. By the treaty of Portsmouth, after the Russo-Japanese war, this area, measuring two-fifths of the island was returned to Japan. Now, the Japanese have made themselves masters of the entire territory, which is a little more than half as large as the state of Ohio.

Saghalin has an average temperature of freezing point the year round. In winter the thermometer falls to 50 degrees below zero. Vegetation grows three months of the year. The total native population is about 5,000. There is little wealth in the island. But, it is opposite the Siberian port of Nikolaievsk.—Allentown (Pa.) News.

China's Effort to Recover Control Over the Chinese Eastern Railway

P EKING, October 27.—Mr. Yeh Kung-cho, minister of communications, and Mr. C. C. Wang, Chinese representative on the inter-Allied board directing the Chinese Eastern Railway, have been working for some time to recover for China a fair measure of control over that important line. To that end and to assist in the ultimate recovery of the railway from non-Chinese ownership and direction a new agreement was recently reached with the Russo-Asiatic Bank. On October 9, a Presidential Mandate was issued explaining the nature of the steps taken and the Chinese reasons for action. Subsequently, it developed that there was strong opposition to these proceedings on the part of several if not most of the legations. This opposition culminated in the calling of a conference which, it is understood, will consider a proposal to place the line under the control of the new Chinese financial consortium.

Chinese who have been looking particularly to the American and British government for encouragement and help are much disturbed over these reports. It is well known that the plan already approved by the Peking government was originated by Mr. C. C. Wang and that he expected help and not obstruction from the American and British legations. The sequel will be watched with intense interest.

The mandate of October 9 is as follows:—

"Since the political crisis in Russia, the Chinese Eastern Railway has been seriously affected. Whenever political changes happened a state of chaos and disorder prevailed in the administration of the railway. Consequently the financial relations of both countries and international communications have suffered. At the very beginning, our government has decided upon a policy of keeping the railway free from all political entanglements, therefore, since the sixth year of the Republic, China has from time to time despatched military and police forces to preserve order and prevent disturbances. In order to insure the safety of the railway, the Chinese government shall temporarily assume the responsibilities and exercise the rights of control regarding the administration of the railway, which formally belonged to the Russian government as provided in the original agreement made between the Chinese government and Russo-Asiatic Bank.

"Now the ministry of communications states, in a memorandum, that in the spring this ministry began negotiations with the representative of the Russo-Asiatic Bank, which is the original party to the Chino-Russian Agreement, with the object of making a supplement agreement. The essential points which have since arrived at are: to increase the number of the Chinese members of the staff for the joint administration of the railway, to make it purely commercial concern and to have the commercial concern, and that the Chinese government shall

temporarily assume the executive control of the Chinese Eastern Railway on behalf of the Russian government until definite arrangements are reached with a united Russian government recognized by China and so forth.

"The proposal of the ministry of communications is hereby approved. The said ministry is hereby ordered to exert its utmost through the director-general of the railway in directing the Chinese and Russian staff to work for the improvement of the Railway. The high military and civil authorities of the Three Eastern Provinces are also hereby ordered to co-operate with the ministries concerned by adopting appropriate measures designed for the adequate protection of the life and property along the Railway territory, so as to satisfy my earnest desire of protecting the people and maintaining the line."

The following is a translation of the new agreement as printed in the *Ching Pao* and reproduced by the *North-China Daily News*:

"Since the Russian revolution foreign and Chinese opinion in regard to the operation of the Chinese Eastern Railway have shown four tendencies.

"The Soviet government after its establishment gave out the report that it was prepared to return the line to China unconditionally. Since China never received an official notification, the rumour received no serious attention.

"For some time several foreign countries have been in favor of control by an international board. China of course could not recognize such a scheme since the railway concerned only China and Russia. If international control of this line were permitted the same system of administration might be applied to all lines in China.

"Sole control by China should be our ultimate objective, but as long as Russian business men have a part capital interest in the line, in spite of the fact that preferential treatment of the Russian diplomats and consuls has been withdrawn, we must

protect Russian interests and postpone the ultimate redemption of the line.

"A fourth solution has been suggested by the ministry of communications. The objectives of the ministry of communications are five: (1) The recovery of rights which have been lost in the original contract and the working agreement of the railway company. (2) The employment of Chinese in the higher posts in the company. (3) The neutral attitude of the government, favoring neither the old nor the new Russian parties. (4) The elimination of any third power from participation in the operation of the line. (5) The exercise of the highest functions on behalf of the Russian government, so that when a stable Russian government is formed the way will be prepared for a revision of the original contract.

"Negotiations along these lines with the Russo-Asiatic Bank have been going on for several months. The point of contention



Mr. C. C. WANG,
Chinese Railway Expert who may Attend
Consortium Conference

was in regard to the number of directors on the board, China insisting on four Chinese directors, while the Bank, under instructions from Paris, would only sanction three. Discussion was therefore suspended for more than 10 days. Recently the manager of the Bank at Shanghai, who is also chief representative of the Bank in the Far East, as well as a director of the railway, came to Peking and the ministry resumed negotiations with him and at two sittings the whole matter was settled and an agreement was signed on October 2. The essential features of this agreement are reported as follows:—

- (1) A board of directors shall be formed on which there shall be five Russians and four Chinese (not including the director-general). The director-general appointed by China shall be chairman of the board and shall have one vote. In the event of a tie vote he shall also cast the (extra) deciding vote.
- (2) Seven votes shall constitute a majority. Seven directors shall constitute a quorum, but among the seven must be either the director-general or the co-director.
- (3) An additional Chinese, and an additional Russian, deputy assistant director-general shall be appointed. The offices of the general manager and other temporary high officers shall be abolished.
- (4) A Chinese administrative vice-director shall be appointed and there shall be Chinese assistant chiefs in the bureaux of accounts, traffic, engineering, and railway guards. Chinese assistants to the chief of other administrative departments in the railway shall also be appointed. How these appointments are to be made will be decided by the board of directors.

"Regarding the return of the Tls. 5,000,000 and interest, and the appointment of Chinese in the railway inspectorate—these shall be arranged through separate agreements."

Russian Rights in China

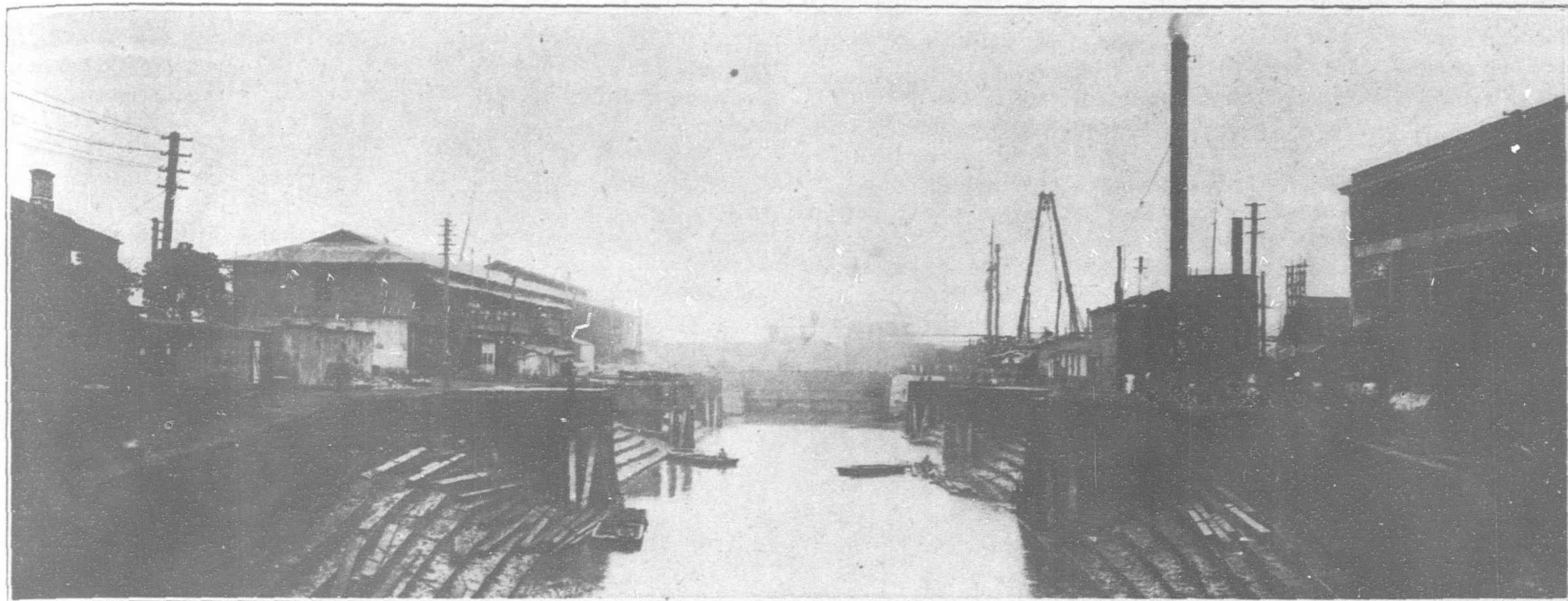
Paris, Oct. 4.—M. de Giers, on behalf of the South Russian government, has telegraphed to the Chinese government protesting against the latter's refusal to recognize the Russian Legation and Consulates in China and pointing out that General Wrangel's government succeeds the temporary government of General Denikin and Admiral Koltchak, which was previously represented in China by diplomatic agents. He declares that the Chinese decree infringes the rights and privileges of the Russians, which are guaranteed by the Sino-Russian treaties and conventions. In conclusion M. de Giers says that Russia will not recognize any acts contrary to these treaties and will hold China responsible for any damage or loss incurred.—*Reuter*.

Japan started several cottonseed oil mills when the war broke out, and is now exporting instead of importing. In 1917 the amount exported was 1,209,551 *kin* valued at Y.209,167; in 1918 the amount was 1,834,798 *kin* valued at Y.604,163; and in 1919, the total was 2,310,840 *kin* worth Y.942,278. The export of cottonseed oil for this year is estimated to reach 2,800,000 *kin* valued at Y.1,200,000.



FAR EASTERN REVIEW.

Drawn by Dr. Sun Yat-sen, Map Showing the Location of the Chinese Eastern Railway and its Vital Relation to Chinese Plans for the Protection of the Russo-Chinese Frontier



YANGTSZEPPO DOCK

A SUCCESSFUL SHANGHAI SHIPYARD

LEADING authorities predict for Shanghai a great future as a shipbuilding centre. A signally successful Shanghai shipyard is that which is directed by the New Engineering & Shipbuilding Works, Ltd. Through the courtesy of the directors and management of this concern THE FAR EASTERN

REVIEW presents some interesting facts which indicate the substantial foundations upon which the business has been built.

The enormous strides made during twenty years are clearly revealed by the accompanying plan which shows the space occupied by the original works, and the extensive area that they cover to-day. The business was started in 1900 as an engineering and ship-repairing establishment and occupied about 2½ acres of land. To-day the works cover 35 acres, either developed or in course of development. In 1903 the concern was converted into a limited liability company capitalized with Sh. Tls. 102,000. Five years later the success attained had been so encouraging that the management felt justified in constructing a drydock, at that time 450-ft. in length, on the foreshore of land that had been already reclaimed. In 1912 the company amalgamated its interests with the Vulcan Ironworks and acquired the latter concern's plant and land; the two works being connected by some foreshore ground then under lease to the New Engineering & Shipbuilding Works. Increased activity soon made it imperative to own this foreshore outright. This was done, and thus the two amalgamated properties were consolidated permanently with a continuous river frontage of 1,200-ft. In 1916 the drydock was enlarged and lengthened to 577-ft. in order to accommodate the larger ocean-going vessels visiting the port of Shanghai. About the same time, and in order to meet the increasing expansion of the business, the company acquired more than 17 acres of land on the opposite side of the river, which is at present in course of development.

The original capital of the company has been increased by further issues of shares from time to time, at a premium, until the whole of the authorised share capital, Tls. 750,000, has now been subscribed. The available assets are approximately Tls. 4,000,000.

This handsome result is largely attributable to judicious management, and in addition, the conservation of its revenues has enabled the Company to finance the large capital expenditure it has been called upon to face during the last few years, the benefits of which are reflected in the works.

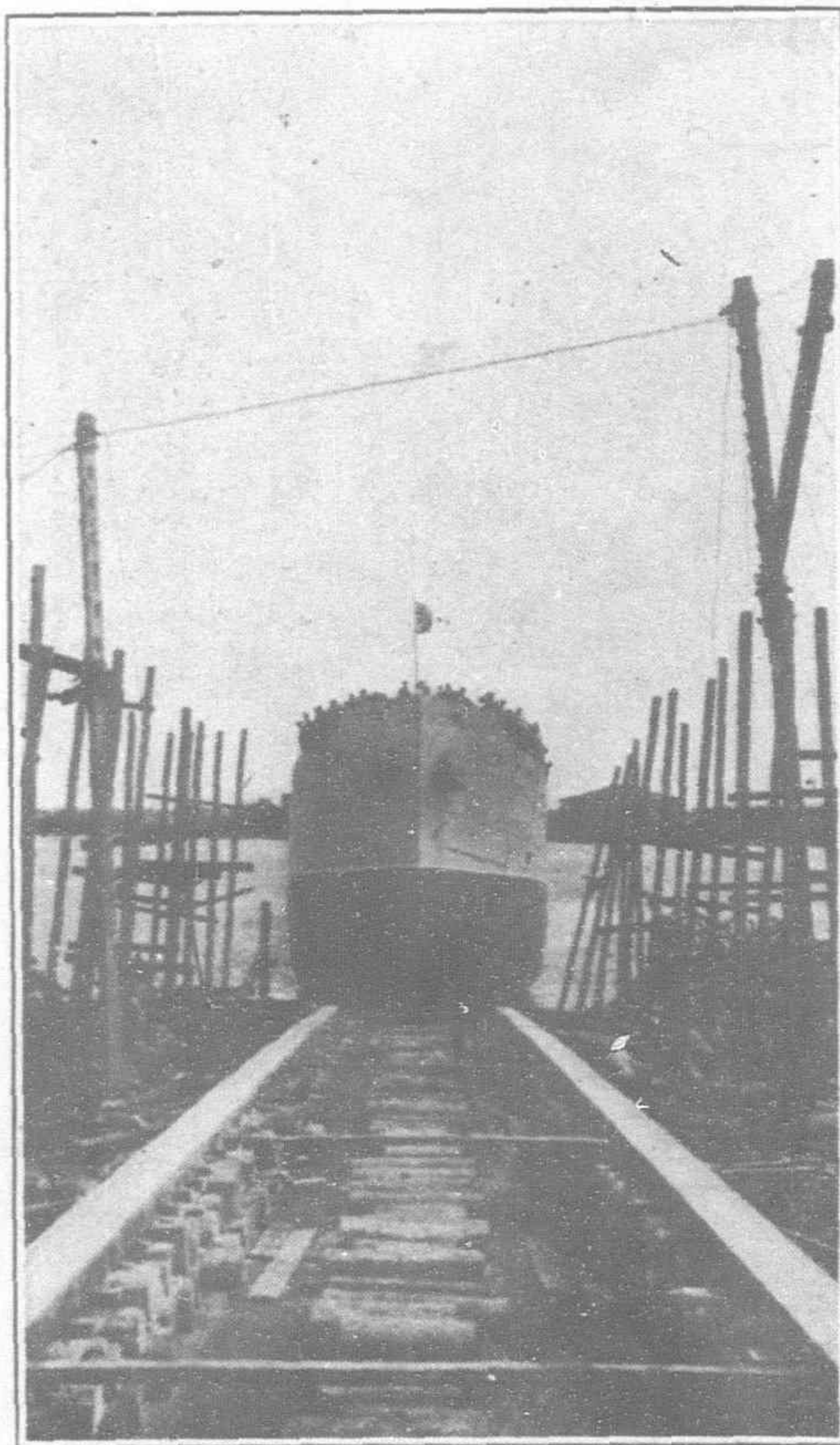
The Shipbuilding & Engineering Works drydock and patent slips are situated on the Shanghai side of the Whangpoo River within easy reach from the business centre of the city.

The works, which comprise two yards, known as the "Dock" yard and "Vulcan" yard, are fully equipped with an up-to-date plant which enables them to undertake any contract that would come within its scope as shipbuilders, engineers, boilermakers, electricians and millwrights. Each department is supervised by a competent European staff.

The general offices are situated on the Yangtszepoo Road at the junction of Jansen Road. They have a frontage of 150-ft. and present a particularly imposing appearance, as will be seen from the design reproduced on page 609. The whole of the building is of reinforced concrete construction, the elevation being finished with granite plaster.

The floor space of the new offices contain an area of about 20,000 square feet, necessary to accommodate the ever-increasing staff, both technical and commercial, required to handle the rapidly-growing business of this Company.

The ground floor contains the main entrance hall, main staircase and lift together with show room and spacious well-lighted godown for general stores and machinery parts, offices for time-keepers and clerks and superintendents supervising vessels under construction at the works.



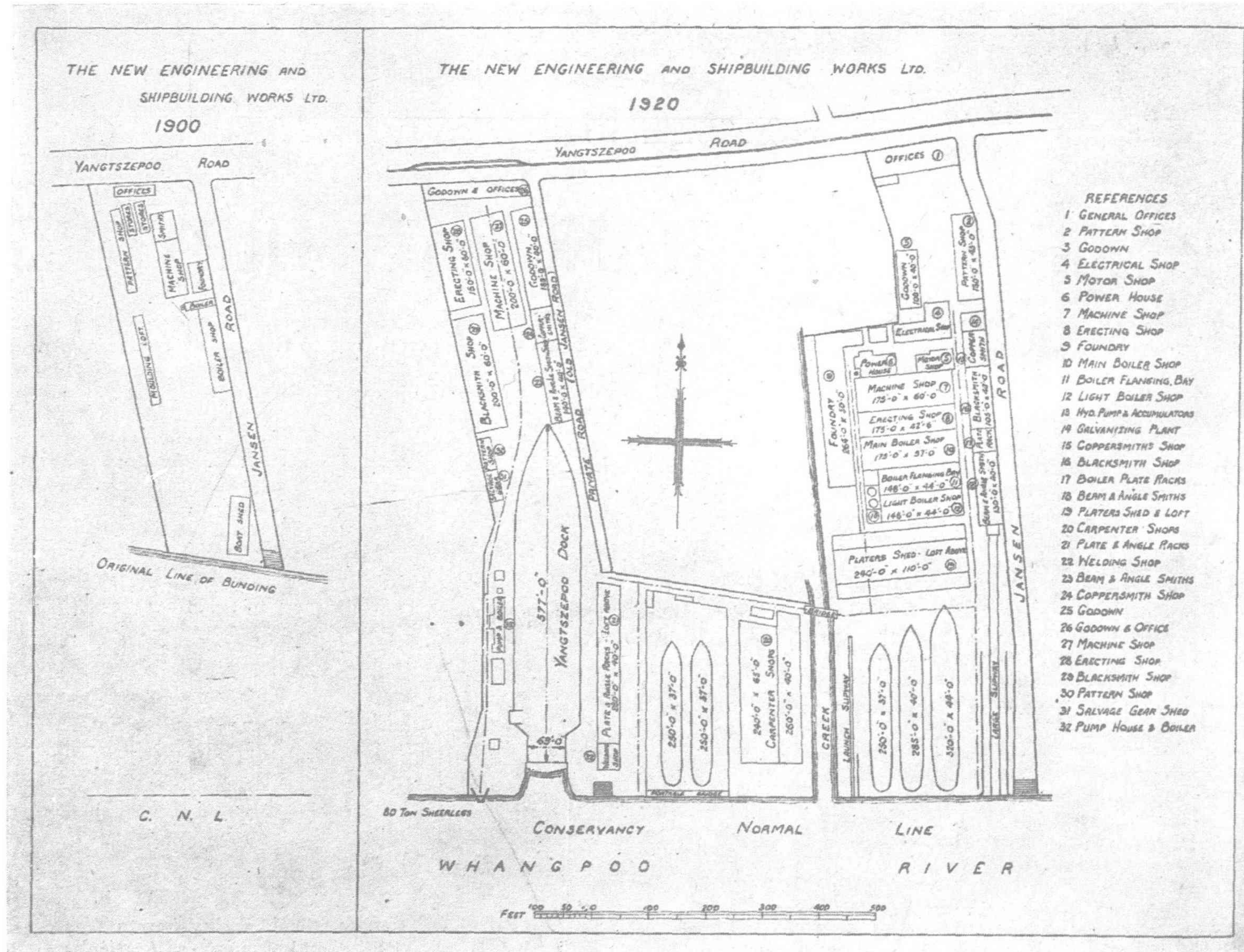
S.S. "Henrik," 2,050 Tons D.W.,
Leaving the Ways,

On the first floor are the managing director's rooms and offices for manager, secretary, accounts department, stenographers and general office staff.

The second floor is given up almost entirely to the designing and drawing offices, large rooms being provided for the foreign draughtsmen as well as for the Chinese staff of tracers. The whole of the furniture for the storage of plans and drawings is of the "all steel" make, consisting of sections of steel drawer cabinets forming counter-heights and sufficient of these are available to accommodate about 25,000 plans. The strong room on this floor is also fitted up with steel racks and shelving for the storage of plans. Provision has been made for the preparation of blue and white prints by electricity, a large room being provided for this purpose where electric copying machines of the most modern type are installed.

parts of marine engines are made. The upper floor is laid out as a drawing loft and is partly used for the making and storage of light patterns. The shops are well equipped with wood planing machines, band and circular saws, wood lathes, and boring machines all operated by electric drive.

Proceeding down the yard towards the river on the right-hand side is the electrical workshop, marked No. 4 on the key plan, where every description of motor and dynamo winding and repairs are carried out. Wiring and ship's lighting for new steamers is undertaken by the company and the entire electrical equipment of the works and docks is looked after and repaired by their own electricians. Adjoining the electrical shop is the marine motor department, where the well-known "Speedy" marine motors are manufactured. The shops are well equipped with modern machine tools



Plan Showing Growth of Works with Relative Area Occupied in 1900 as compared with 1920

All the floors of the building are of concrete covered with Singapore hardwood planking and the partition work for the various rooms is carried out in oak and glass panelling. Each floor is provided with hot and cold water service and the whole building is heated on the hot water system whereby the temperature can be evenly regulated at all times. All the offices have steel casement windows of generous proportions assuring the maximum light and air. Automatic telephones are installed throughout the main offices and the works, giving rapid and reliable intercommunication between the various departments.

On the east side of the yard adjoining Jansen Road are the patternmakers' shops. They occupy a two-story building covering an area of 6,750 square feet. The structure is of brick on three sides and on the yard side is enclosed with wood. On the ground floor the heavy patterns, such as cylinders, bedplates, columns and

specially adapted for this class of work consisting of screw cutting and turret lathes, small planers and slotting machines, high speed drilling and milling machines and a special grinding tool for dealing with crank pins, shafts, cams and internal grinding. Two oil furnaces are installed for case-hardening, pistons, crank pins, cams and other parts used in the construction of the motors which require to be so treated. A "Griffin's" patent disc dynamometer with central screw adjustment is in use in the testing bay, besides various sizes of the "Pony" brake type. Motors from 5 to 110 B.H.P. are manufactured and the shops are capable of undertaking the most extensive repairs to motor engines of all sizes, including repairs to the largest oil engined vessels calling at Shanghai.

MACHINE SHOPS.—The main engine and erecting shops, numbered 7 and 8 on the reference plan, consist of two bays each 175-ft. long running parallel to the river frontage. The north

bay, which is 60-ft. wide, contains a very comprehensive collection of lathes, planers, slotters, shapers, keyway cutting machines, millers, boring and facing machines and gear cutters for worm, bevel and spur gearing. The heavier machine tools are mostly situated at the west end of the shop, consist of heavy face plate lathes, cylinder boring machines and planers and machines suitable for marine engine parts. Each side of the building carries a gallery where the smaller machine work is dealt with on light screw cutting machines turret lathes and brass-finishers tools. This bay is fitted with an electric crane by Messrs. W. E. Craven and Sons and all the machines are electrically driven. The adjoining bay on the south is mainly used as a fitting and erecting shop a portion of the west end near the foundry being set out with machines for dealing with heavy castings. The machines in this bay require special comment, being of the most modern class used in marine engine work.

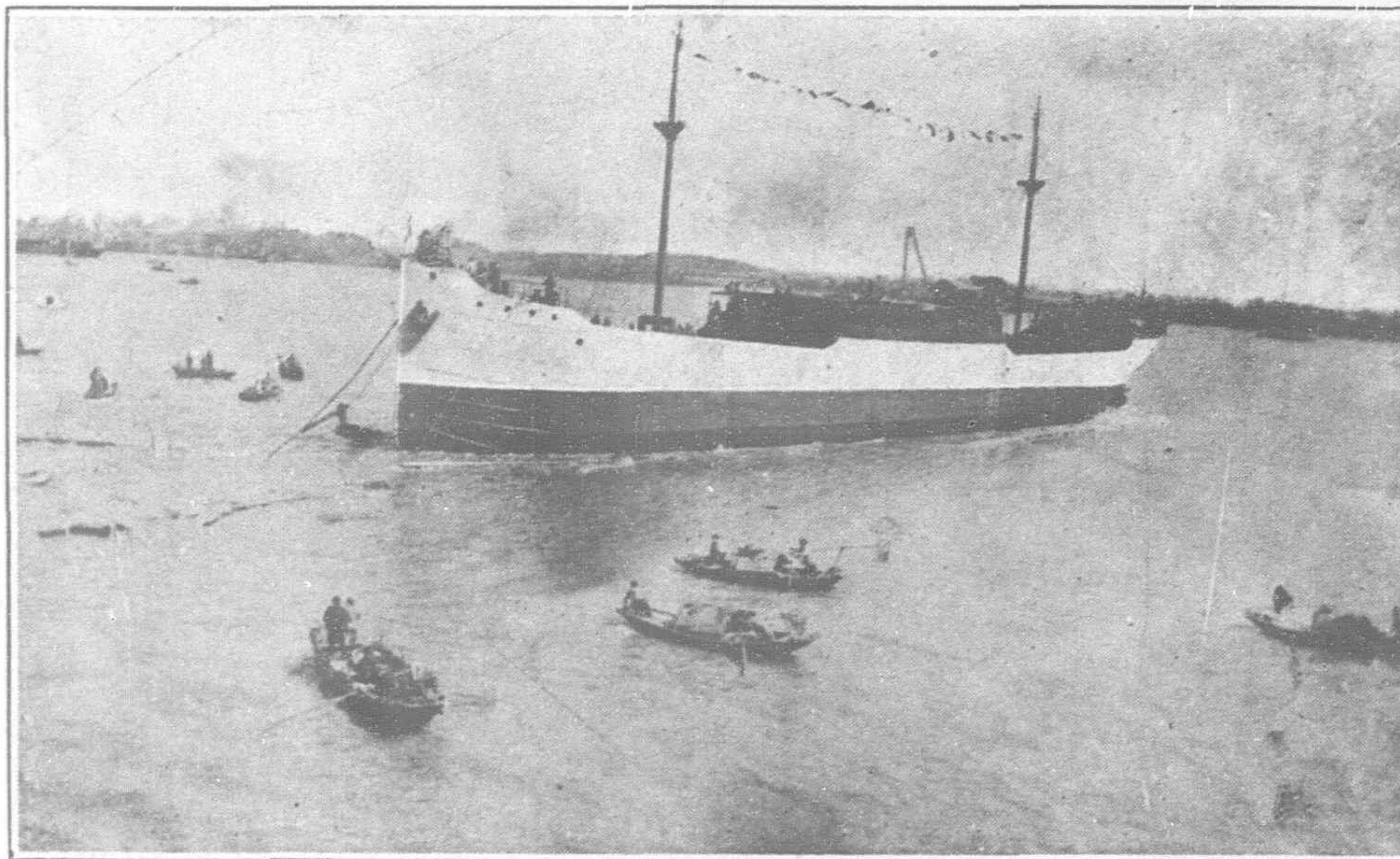
A useful tool for dealing with engine bedplates, cylinders and condensers is a horizontal and vertical planing machine by Messrs. Loudon Bros., Limited, Johnston, N.B. This machine can accommodate work up to 16-ft. long by 12-ft. vertical stroke and is driven by Lancashire electrical reversing equipment specially designed to give a range of cutting speeds up to 55-ft. per minute with variable returns up to 110 per minute. The under bed and work plate is of heavy sections, well ribbed and stayed for the reception of heavy work, and the machine is so arranged that all operations including the starting and stopping of the tool is controlled by push button switches fitted at either end of back bed. Another machine by the same makers is a patent horizontal planing machine designed for heavy engine and forge work and is capable of taking the heaviest cuts at high rates of speed. The drive is by means of direct coupled electrical rever-

sing equipment with all the latest improvements specially designed to give a maximum ratio of table speeds of 5 to 1 with cutting speeds up to 108 feet per minute and variable return up to 216 feet per minute.

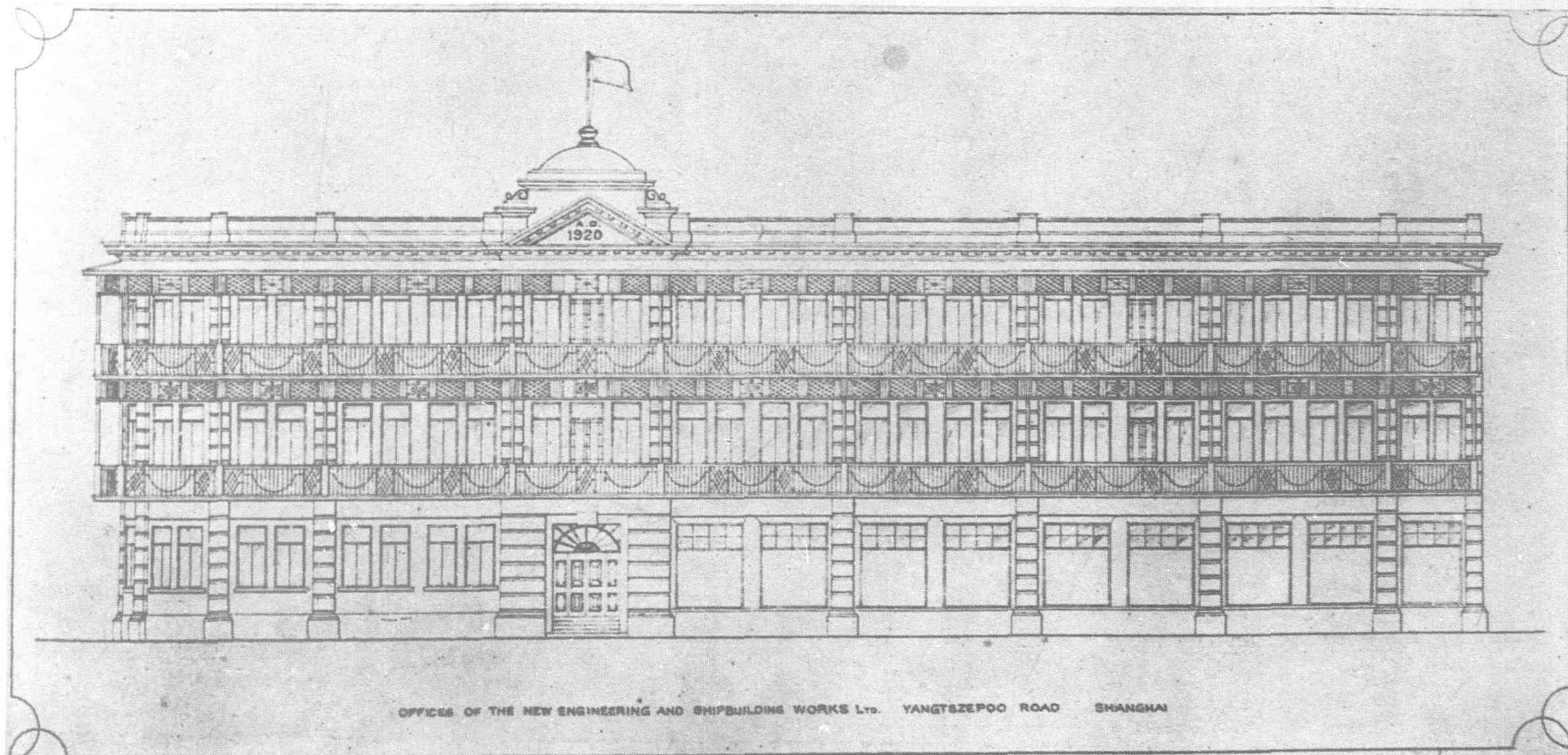
A 24-in. "Loudon" heavy service shafting lathe is also installed in this bay suitable for the most economical production of shafting and engine work of the heaviest classes. The machine which is driven by independent electrical motor, is provided with gearing of great power and is capable of taking the heaviest cuts at high rates of speed. Among the other machines with which this shop is equipped is a vertical milling and profiling machine by Messrs. Hulse & Co., Ltd., Manchester, England, and a heavy duty hack sawing machine capable of dealing with rounds up to 14-in. diameter and sections up to 20-in. by 12-in. A 25-ton electric overhead crane completes the principal equipment of this bay.

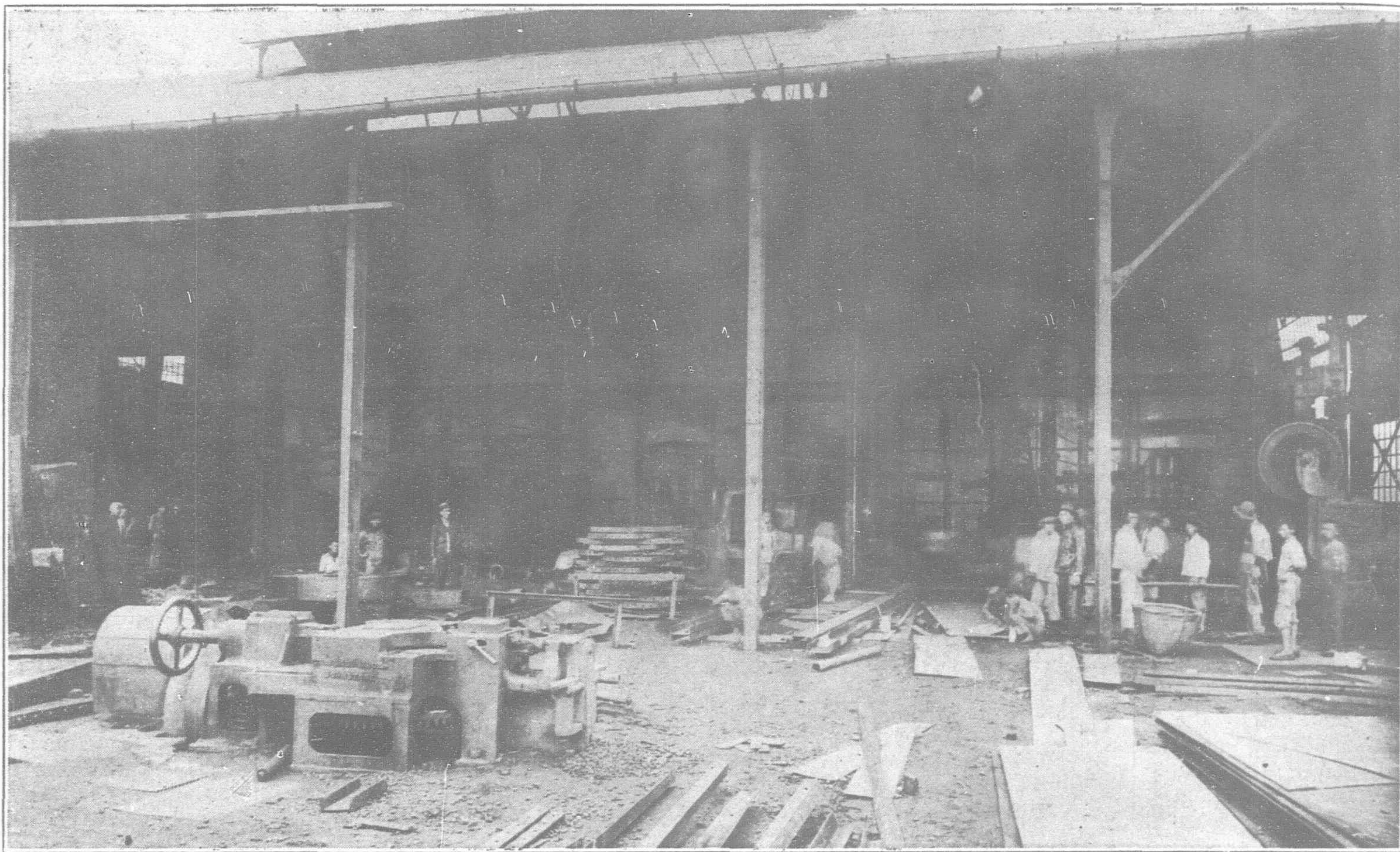
FOUNDRY. — Leaving the machine shop at the west end running at right angles to this shop is the foundry consisting of one long bay measuring 264-

ft. by 50-ft. Excepting 50-ft. at the north end of the shop, which is set out for the manufacture of small brass castings, the whole of the area is devoted to the usual marine engine castings, the lighter work being arranged at the north end and the heavy castings such as cylinders, condensers, propellers, etc., at the south end where the cupolas are situated. Three cupolas are installed two coupled together each capable of dealing with 6 tons of metal and one of 3 tons capacity besides a number of smaller cupolas all supplied with draught from powerful electric "Sirocco" fans. The average size of castings made is from three to four tons although castings of 7 tons have been produced without difficulty.



S.S. "Halvdan" After Launching.





General View of Shipyard Sheds



"Vulcan Yard"—Machine Shop—North Bay

The foundry is served by a 15-ton electric overhead crane operated from the floor level, also by several hand overhead and jib cranes. Outside the shop at the south end is an enclosure where the raw materials are received for use in the cupolas and foundry.

BOILER SHOPS.—The boiler shop as seen from the reference plan, runs parallel with the main machine and erecting shops and is situated at the south of this building. The boiler shop consists of three bays each 175-ft. long, the north bay being 57-ft. and the two south bays each 44-ft. in width, the total width of the building is therefore 145-ft. The main bay which is fitted with a 30-ton overhead electrical travelling crane is mainly given over to the construction of marine boilers and is equipped with the most modern machinery for dealing with this class of work. Reference may here be made to some of the larger tools as, for instance, the heavy punching and shearing machine, plate edge planing machine, plate rolls, a boiler shell-drilling, tapping and staying machine

consisting of two sets of three throw geared vertical electrically driven pumps by Messrs. Fielding & Platt, Limited, working in conjunction with two hydraulic accumulators, the size of ram being 10-in. diameter by 14-in. stroke and the working pressure 1,500-lb. per square inch.

At the gatehouse end is the galvanizing workshop, which is fitted up with zinc vats for the galvanizing of rails, stanchions and ship's fittings, the deposit being obtained by electric process. The shop next to this is occupied by coppersmiths engaged on ventilators, tanks and light pipe work for ships, the heavier work being undertaken at the dock-side shops. Then there is the shipyard smithy, where the small ship forgings such as rails, stanchions, dock fittings, gratings, ladders, etc., are made, to relieve the blacksmiths shop at the dock works. The remaining area under this bay is given over to the shipbuilders for beam bending and anglesmith work.



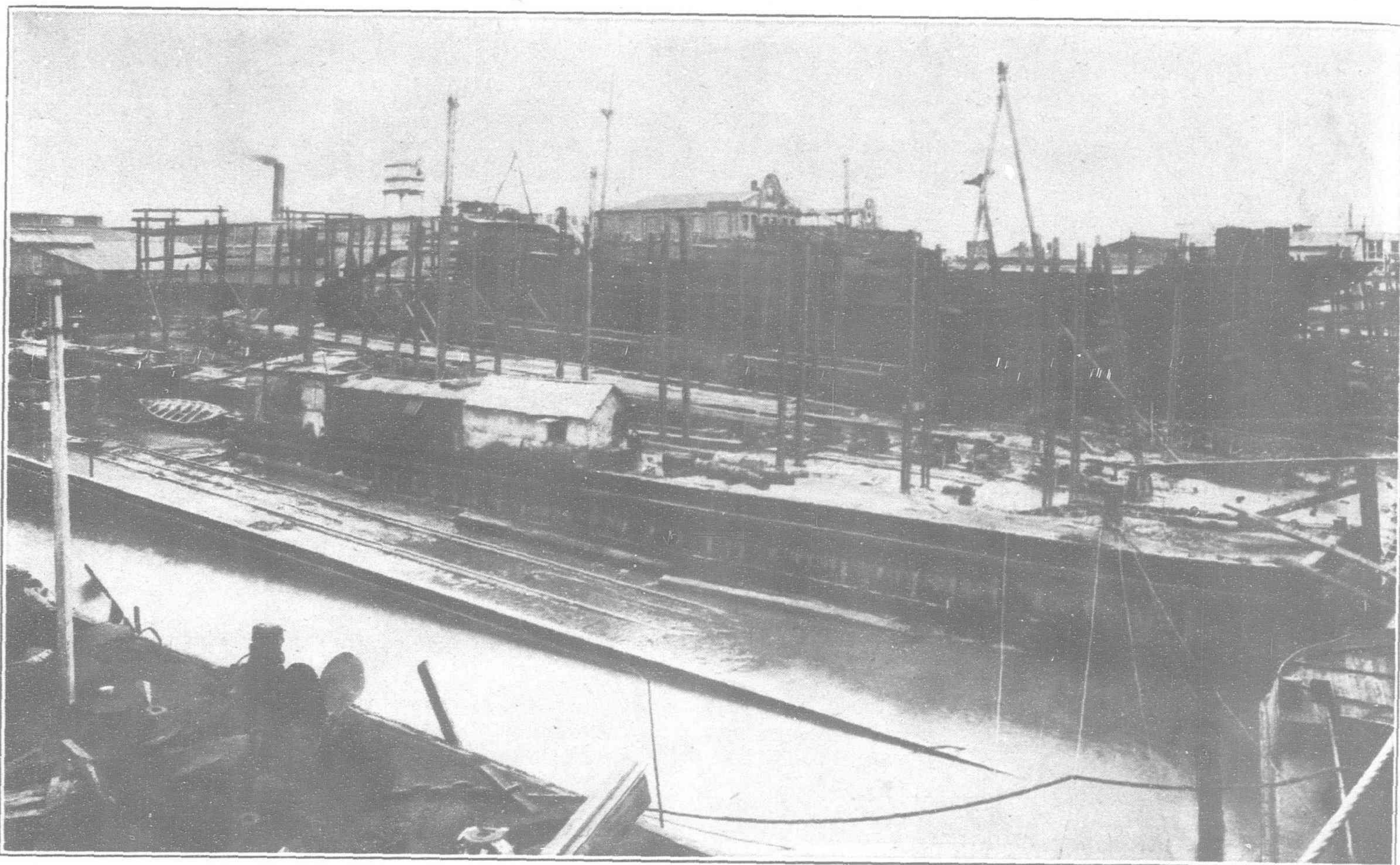
The Boiler Shop—Main Bay

by Messrs. Campbell and Hunters, Ltd., Leeds, and a vertical hydraulic plate bender for forming the outer plates for cylindrical boilers, capable of dealing with plates 12-ft. wide by 1½-in. thick. The shops are well equipped with portable and fixed hydraulic rivetters, the largest of which, made by Messrs. Henry Berry & Co., Ltd., can take a boiler shell plate 12-ft. 6-in. wide and having a range of power of 50-100 and 150 tons.

The adjoining bay is set out for flanging work and is equipped with two hydraulic flangers by Messrs. Fielding & Platt, Ltd., the heaviest of which is fitted with two vertical rams having a combined power of 160 tons and one horizontal ram having a power of 75 tons, the size of gap being 4-ft. from face of standard between vertical rams. Among other special machines in this bay is a round and oval hole cutting out machine which will cut out round holes in boiler end plates up to 4-ft. 6-in. An overhead electrical crane of 6 tons capacity by Messrs. Babcock & Wilcox is at service in this bay for handling boiler end plates. The hydraulic plant for working the boiler tools is in duplicate

SHIPYARD.—The space available for shipbuilding construction extends from the south bay of the boiler shop right down to the river front a distance of 500-ft. the eastern boundary being the large slipway, the shipbuilding area extending across the creek to the Yangtzepoo Dock. On the Vulcan side, three building berths are laid out for ships up to 300-ft. in length and over, and on the adjoining foreshore a similar area is available, which is principally used for the construction of towboats, lighters and pontoons but, of course, may be used if required for cargo vessels.

The platers sheds, adjoining the south bay of the boiler shop, are at present under reconstruction and when completed will be a steel framed structure 240-ft. in length and 110-ft. wide divided into three bays. The wing bays are each 30-ft. wide while the central bay is 50-ft. wide. The greater part of the sides and ends are covered with glazing while the remainder is covered with corrugated sheets. In an upper storey extending over the whole of the central bay is the mould loft, the floor dimensions of which are 240-ft. long by 50-ft. wide and the height to the spring is 12-ft.



The Building Berths—Vulcan Yard. Showing Ocean Going Cargo Steamer Under Course of Construction

while in the centre the height is 22-ft. The sides, ends and roof are partly glazed and partly covered with corrugated sheets. There are benches along the whole length of one side of the loft for making moulds and templates and the work is further facilitated by the employment of motor-driven saws and other tools.

The total equipment of the platers' shed includes a variety of punching and shearing machines, shipyard rolls, etc., disposed in the most convenient manner for the various stages of the work. The largest machine is designed to punch holes 1½-in. diameter in mild steel plates 1¼-in. in thickness. A four-sided combined punching and shearing and notching machine is fitted, capable of punching 1½-in. diameter holes through 1¼-in. plate and shearing 1¼-in. plates. The side frame is arranged for punching 4-in. diameter holes through ¾-in. plate and the opposite frame to cut notches 10-in. by 3-in. by ¾-in.

Two independent cranes are fitted to the machine for handling the work. The large combined beam bending, angle cutting and vertical punching machine is designed to punch 1-in. diameter holes through ¾-in. plates, bend 10-in. channels or 8-in. by 6-in. angles and cut angles up to 8-in. by 6-in. or bulbs to 8-in. by 4-in. Plate straightening rolls or "mangles" as they are termed, are provided of various makes and capacities, all fitted with self-contained cranes. In addition to the above-mentioned tools, there are a number of radial drills, plate edge planers, joggling machines, etc., which form part of the equipment of all modern platers' sheds. All these machines are electrically driven by independent motors, using Shanghai Municipal Electricity current.

Two patent slips are available at the Vulcan Works suitable for light draft vessels. The largest slip at the eastern side of the property is capable of taking vessels up to 240-ft. in length and 4-ft. draft, while the smaller slipway adjoining the creek is designed for dealing with smaller craft such as launches, motor boats, houseboats, etc.

CARPENTERS' SHOP.—Leaving the Vulcan shipyard and crossing the creek running north and south the visitor comes to the carpenters' shop and sawmills—No. 20 on reference plan. This building,

which is entirely of wood, covers an area of 26,000 square feet and is divided into two separate bays, the east bay measuring 260-ft. long by 40-ft. wide. Cabinet-making and light joinery work is carried out in this shop. The adjoining bay which is 65-ft. wide is laid out as a carpenters' boat-building yard and sawmill. The sawmill is equipped with frame and horizontal saws for cutting up logs also several circular saws and planing machines capable of dealing with boards 8-in. wide by 4-in. thick. Two special four cutter planing, thicknessing, and moulding machines are fitted which will surface and thickness up wood from ½-in. to 6-in. thick and plane work on four sides at one operation, also plane, joint, tongue and groove work skirtings, strike moulds, and work window and sash bars. As the whole of the woodwork in connection with the fitting out of the vessels built is undertaken at the works, the sawmill deals with a considerable amount of work.

Passing over the building berths of this foreshore, situated on the east side of the Yangtzepoo Dock and running north and south is a long shed 325-ft. in length by 40-ft. wide, the height to eaves being 24-ft. About 150-ft. of this shed is used as a mould and template loft in connection with the small craft building and ship repairs in dock. The entire length of the shed on the ground floor with the exception of 50-ft. at the south end is laid out with plate and angle racks for the storage of shipbuilding materials, the plates and angles being sorted out according to size and thickness and placed in the appropriate racks. Under the shed at the south end facing the river is the welding shop in which is installed two complete sets of welding equipment for the "quasi arc" welding process suitable for light to medium heavy work using electrodes from No. 12 to No. 4 gauge, both welding sets are self-contained and may be taken out to work on the river. The larger set consists of 4 cylinder 36 B.H.P. "Pelephone" kerosene motor direct coupled to a specially designed "Electromotor" welding dynamo to give 22 K.W., 209 amperes, on 105 volts at 600 revs. per minute, while the smaller set comprises a 26 B.H.P. four cylinder "Speedy" kerosene motor and suitable welding dynamo. A complete "oxy-acetylene" equipment and electric spot welder is also installed in this shop.

At the head of the dock, the yard area is laid out with shipyard machinery for handling repair work for vessels in dock, while about 150-ft. of the sheds on each side is given over to the platers and anglesmiths. Adjoining the ship repairers' shed is the coppersmiths' shop equipped with a complete outfit of lathes, drills, rolls, screwing machines, pipe benders, brazing fires, clamps and testing sets. We would here make mention of a 75-ton hydraulic pipe bending press by Messrs. Henry Berry & Co., Ltd., Leeds, which is capable of dealing with steel pipes up to 12-in. outside diameter and copper tubes up to 16-in. outside diameter, when working with a pressure at 1,500-lb. per square inch.

The blacksmiths' shop on the west side of the dock measures 200-ft. long by 60-ft. wide. In this shop all the principal marine engines and ship forgings are made under steam power. The forging plant consists of steam hammers of various sizes ranging from 40 cwts. to 5 cwts., all supplied with suitable cranes. Large extensions are anticipated in this shop and the company is considering a scheme of installing a complete forging plant and suitable heating furnaces for heavy ingots. A 250-ton high speed forging press will be included in the equipment. Smith's Hearths are installed throughout the shop supplied by draught from two 25-in. electrically driven "Sirocco" fans. All the fires are connected to smoke ducts for carrying off the smoke and fumes. Stem and stern frame forgings weighing up to 5 tons are at present produced.

The marine engine repair shop and general engineering works occupy the central area at the head of the dock. The shops are extensively equipped with lathes, planers, millers, slotters, drilling machines and machine tools which are at work night and day on repair work. New machines have been added from time to time and extensions made to relieve the pressure of work until all the available space inside the shops has been taken up. It has now been decided to build a three-bay steel structure over the present shop and re-arrange the lay-out of machines as far as possible without interfering with the work on hand. Electric cranes are on order and when the extensions are completed the shops will be equipped in the most modern manner for dealing with marine engine repairs.

On the west side of the machine shop are the fitting and erecting shops, to which large extensions are shortly to be made, taking in the adjoining shed which is at present used as a godown. The remaining area on this side of the works is occupied as godown space for the storage of ship and engine stores of which very large and varied stocks are carried.

The Yangtzepoo drydock is of sufficient size easily to accommodate the largest vessels visiting the port. It can be pumped dry in two and a half hours, which time is generally utilized for scrubbing down hulls preparatory to inspection. The dimensions are as follows:—

Length on blocks	...	...	...	...	570 feet
Length overall	...	...	...	...	577 "
Entrance	...	...	...	...	70 "
Width of sill	...	...	...	...	60 "
Depth of floor	...	...	...	...	28 "
Depth on sill (H. W. O. S. eides)	...	...	...	...	21 "
Depth on 3-ft. blocks (H. W. O. S. tides)	...	...	...	...	21 "

The main pumping plant consists of two complete sets of 22-in. centrifugal pumps each direct coupled to a high speed compound engine. Owing to the increased length of the dock these pumps are now considered to be inadequate to deal with the large volume of water which it is often necessary to pump out under the worst conditions; and, in addition, two 24-in. electrically driven pumps of the latest type will shortly be installed. Electrically driven pumping sets are at present in use for draining the dock and manœuvring the caisson, and electrical winches and capstans are being fitted to facilitate docking and undocking of vessels.

Heavy shearlegs are situated at the dock entrance capable of taking lifts up to 80 tons and floating cranes of 50 tons and 20 tons capacity are available for discharging heavy lifts from steamers in the harbour.

A complete salvage plant is held in readiness for all cases of emergency, consisting of powerful steam-driven centrifugal

pumps, salvage piping from 4-in. to 10-in. diameter with sliding suction pipes, foot valves, strainers, bolts, nuts and fastenings. In addition to above, three complete "Drysdale" centrifugal pumping salvage sets have recently been added to this plant. The pumps which are respectively 6-in., 8-in. and 10-in. diameter are each direct coupled to a kerosene motor fitted on a combined bedplate and arranged with bogie and slings to facilitate handling. Each set is supplied with a complete set of pipes and fittings.

From this description it will be seen that the establishment is well able to carry out any class of work that it may be called upon to undertake.

Fatal Tongshan Mine Explosion

ON October 14 an explosion that caused the loss of 422 Chinese lives occurred at the Tongshan mines of the Kailan Mining Administration. The following is the Company's report of the occurrence:—

On the afternoon of Thursday last, the 14th instant, a very serious explosion occurred in the Kailan Mining Administration's Tongshan Mine. The explosion set fire to the coal and the mining timber in the gallery in which it occurred, and the gas and smoke produced in great volume by the explosion and fire percolated through the other workings, in which a large number of coolies were employed at the time.

Rescue work was immediately started under the direction of the Acting Engineer-in-Chief and the foreign staff at the Tongshan mine, who when the gravity of the accident was realized called in the aid of the Engineer-in-Charge of the Chaokochuang mine and his four foreign assistants. Substantial help was rendered to the foreign engineers by a number of contractors and coolies of the Tongshan mine. The rescuers penetrated into every part of the mine at the earliest possible moment that circumstances permitted. Through their efforts 119 laborers were brought alive to the surface and resuscitated but the Administration has with great regret to report a death-roll of 422 including two foremen, the deaths being due to suffocation by fumes and smoke.

The explosion occurred at No. 9 level, that is the lowest level but one, and in a part of the mine where fire damp was known to be present. On this account all safety precautions were taken and safety lamps were exclusively used. These Davy lamps have been devised as a precaution against the risk of explosions from fire damp, and are in general use in all parts of the world as well as in China, the presence in a greater or less degree of fire damp being a characteristic of nearly all coal mines. Although careful investigations have been made and are being continued, conclusive evidence as to the cause of the accident has not so far been obtained. It is believed, however, that the accident was due to the tampering of the laborers with a Davy lamp. The lamp is surrounded by wire netting and so long as the flame is enclosed within this netting it is impossible for ignition of the fire damp or other gases to take place. Although the quantity of fire damp present in the Kaiping Mine is comparatively slight as compared with other mines abroad minor explosions have from time to time taken place, proved to have been due to the opening of the safety lamp in order to light a cigarette or for other reason. The fact that on the bodies of some of the unfortunate victims cigarettes were found concealed affords some evidence that the opening of the lamp for the purpose of lighting a cigarette was the cause of the accident.

Special arrangements have been made in conjunction with the local magistrate for the identification of the bodies, for special religious services and for the burial of the victims, also for the compensation of the families and relatives. Apart from actual manifestations of grief, no kind of demonstration has been made at Tongshan, all being quiet in the neighborhood of the mine, which will reopen on the 19th instant.

A Chinese Plan for Chinese Railway Development

Dr. Sun Yat-sen's Fourth Program for the International Development of China

(Continued from October, 1920).

This is the conclusion of the fourth part of Dr. Sun's important contribution towards the solution of China's most urgent problem. The first program was published in *THE FAR EASTERN REVIEW* for June, 1919. It embraced (1) the construction of a great Northern port on the Gulf of Pechihli; (2) the building of a system of railways from the great Northern port to the Northwestern extremity of China; (3) the colonization of Mongolia and Turkestan; (4) the construction of canals to connect the inland waterway systems of North and Central China with the great Northern port; and (5) the development of the iron and coal fields in Shansi and the construction of an iron and steel works.

The second program appeared in *THE FAR EASTERN REVIEW* for August, 1919. It comprised (1) a great Eastern port; (2) the regulation of the Yangtze channels and embankments; (3) the construction of river ports; (4) the improvement of existing canals and waterways in connection with the Yangtze, and (5) the establishment of large cement works.

The third program will be found in *THE FAR EASTERN REVIEW* for June, 1920. It outlined (1) the construction of the Southwestern railway system; (2) the construction of coast ports and fishing harbors; and (3) the establishment of ship-building yards and the necessity for a suitable standardized type of inland water vessel.

The first instalment of the fourth program appeared in *THE FAR EASTERN REVIEW* for October, 1920. It dealt with (1) the Central Railway System and (2) the greater part of the Southeastern Railway System.

By Dr. Sun Yat-sen, ex-President of China

THE Nanking-Kaying Line. This line starts from Nanking, proceeds to Lishui and Kaoshun and then crosses the Kiangsu border into Anhwei at Suencheng. From Suencheng it proceeds to Ningkwo and Hweichow. After Hweichow it crosses the Anhwei border into Chekiang, passing through Kaihwa, Changshan, and Kiangshan, and leaving Chekiang enters Fukien at Pucheng. From Pucheng it proceeds via Kienning for Yenping where it crosses the Foochow-Wuchang line and then goes through Shahsien and Yungan to Mingyang, where it meets the Foochow-Kweilin and Amoy-Kienchang lines. From Mingyang it proceeds to Lungyen, Yungting, then joining the Amoy-Canton line at Tsungkow proceeds together to Kaying, its terminus. This line runs over a distance of about 750 miles.

l. The Coast Line between the Great Eastern and the Great Southern Ports. This line starts from the Great Southern Port—Canton—proceeds in the same direction as the Canton-Kowloon line as far as Sheklung and then goes its own way following the course of the Tungkiang River to Waichow. From Waichow it proceeds to Samtochuck, Haifung, and Lukfung, then turning northeastward goes to Kityang and Chaochow. After Chaochow it goes to Jaoping, then crossing the Kwangtung-Fukien border to Chaoan. Thence it proceeds to Yunsiao, Changpu, Changchow, and Amoy. From Amoy it proceeds to Chuanchow, Hinghwa, and Foochow, the capital of Fukien. After Foochow it proceeds in the same direction as the Foochow-Chinkiang line, as far as Fuan, then turns eastward to Funing, and northward to Futing. After Futing it crosses the Fukien border into Chekiang and proceeds through Pingyang to Wenchow. At Wenchow it crosses the Wukiang and proceeds to Lotsing, Hwangyen, and Taichow. Thence, it proceeds through Ninghai to Ningpo, its own terminus, where it connects with the Ningpo-Hangchow line, thus linking it with the Great Eastern Port via Hangchow. This line covers a distance from Canton to Ningpo of about 1,100 miles.

m. The Kienchang-Yuanchow Line. This line starts from Kienchang and runs through Yihwang, Loan, Yungfeng, and Kishui to Kian, where it crosses the Nanking-Siuchow line. After Kian it proceeds to Yungsin and Lienhwa where it meets the Swatow-Changteh line. Thence it crosses the Kiangsi border into Hunan, at Chaling, then through Anjen to Hengchow where

it crosses the Canton-Hankow-line. From Hengchow the line proceeds to Paoking where it crosses line (a) of the Canton-Chungking Railway then westward to Yuanchow, its terminus, where it joins with the Shasi-Singyi line. This line covers a distance of about 550 miles. The total length of this southeastern railway system is about 9,000 miles.

Part III.—The North Eastern Railway System

This system will cover the whole of Manchuria, a part of Mongolia, and a part of Chihli province—an area of nearly 500,000 square miles, with a population of 25,000,000. This region is surrounded by mountains on three sides and opens on the south to the Liaotung Gulf. Amidst these three mountain ranges lies a vast and fertile plain drained by three rivers—the Nonni on the north, the Sungari on the northeast, and the Liaoho on the south. This part of China was once regarded as a desert, but since the completion of the Chinese Eastern Railway it has been found to be the most productive soil in China. It supplies the whole of Japan and a part of China with nitrogenous food in the form of soya bean. This bean, the wonderful properties of which were early discovered by the Chinese, contains the richest nitrogenous substance among vegetables and has been used as a meat substitute for many thousand years. Vegetable milk is extracted from this bean, and from this milk various kinds of preparations are made. The extraction from this bean has been proved by modern chemists to be richer than any kind of meat. The Chinese and the Japanese have used this kind of artificial meat and milk from time immemorial. Recently food administrators in Europe and America have paid great attention to this meat substitute, while the export of soya bean to Europe and America has steadily increased. This Manchu-Mongolian plain is destined to be the source of the world's supply of soya bean. Besides soya bean, this plain also produces a great quantity of various kinds of grains, and supplies the entire Eastern Siberia with wheat. The Manchurian mountains are exceedingly rich in timber and minerals—gold being especially found in great quantities in many localities.

Railway construction in this region has proved to be a most profitable undertaking. At present there are already three railway systems tapping this rich country, viz., the Peking-Mukden line, the best paying railroad in China, the Japanese

South-Manchurian Railway, also a very remunerative line, and the Chinese Eastern Railway, the best paying portion of the whole Siberian system. Besides these, there are many lines projected by the Japanese. In order to develop this rich region properly a network of railways should be projected.

Before dealing with the separate lines of this network of railways, I should like to propose a centre for them, just as the spider's nest is to a cobweb. I shall name this central city "Tungchin," the Eastern mart, which should be situated at a point southwest of the junction of the Sungari and Nonni rivers, about 110 miles west by south from Harbin, and will be in a more advantageous position than the latter. This new city will be the centre not only of the railway system but also of the inland water communication when the Liaoho-Sungari Canal is completed.

With the projected city of Tungchin as a centre, I propose the following lines:

- a. The Tungchin-Hulutao line.
- b. The Tungchin-Great Northern Port line.
- c. The Tungchin-Dolon Nor line.
- d. The Tungchin-Kerulen line.
- e. The Tungchin-Moho line.
- f. The Tungchin-Korfen line.
- g. The Tungchin-Yaoho line.
- h. The Tungchin-Yenchi line.
- i. The Tungchin-Changpeh line.
- j. The Hulutao-Jehol-Peking line.
- k. The Hulutao-Kerulen line.
- l. The Hulutao-Hailar line.
- m. The Hulutao-Antung line.
- n. The Moho-Suiyuan line.
- o. The Huma-Chilalin or Shihwei line.
- p. The Ussuri-Tumen-Yalu-Coast line.
- q. The Linkiang-Dolon Nor line.
- r. The Chikatobo-Sansing or Ilan line.
- s. The Sansing or Ilan-Kirin line.
- t. The Kirin-Dolon Nor line.

a. The Tungchin-Hulutao line. This is the first line that radiates from this projected Manchurian railway centre, and is the shorter of the two direct lines that lead to the ice-free ports on the Liaotung-Chihli Gulf. It runs almost parallel to the South Manchurian Railway, the distance between the two lines being about 80 miles at the northern end, converging to 40 miles at Sinmin, and diverging again after that point. According to the original agreement with the former Russian Government, no parallel line within 100 miles was allowed to be built. But such restriction must be abolished under this new International Development Scheme for the benefit of all concerned. This line starts from Tungchin, and proceeds southward across the vast Manchurian plain by Changling, Shuangshan, Liaoyuan, and Kangping, to Sinmin in a straight line covering a distance of about 270 miles. After Sinmin, the line joins the Peking-Mukden Railway and runs on the same track for a distance of about 130 miles to Hulutao.

b. The Tungchin-Great Northern Port line. This line is the second that radiates from this railway centre direct to a deep water ice-free seaport. It starts from Tungchin, proceeding in a southwesterly direction, passes Kwangan, midway between Tungchin and the West Liaoho, and many other small settlements before it crosses the Liaoho. After crossing the Liaoho, it enters the mountainous regions of the Jehol district by a valley to Fowsin, a hsien city, and crosses the watershed into the Talingho Valley. After passing through the Talingho Valley, the line crosses another watershed into the Luan Valley by a branch of the same river. Then it penetrates the Great Wall and proceeds to the Great Northern Port by way of Yungping and Loting. The whole length of this line is about 550 miles, the first half of which is on level land and the second half in mountainous country.

c. The Tungchin-Dolon Nor line. This is the third line that radiates from the railway centre and proceeds nearly in a westerly direction across the plain to Taonan where it crosses the projected Aigun-Jehol line (Japanese), and also meets the termini of two other projected lines, the Changchun-Taonan and the Tsengkiatun-Taonan (Japanese). After Taonan, the line turns

more southward by skirting along the foothills of the southeastern side of the Great Khingan range where vast virgin forests and rich minerals are found. Then it passes through the upper Liaoho Valley formed by the Great Khingan Mountain on the north, and the Jehol Mountain on the south and through the towns of Linsi and Kingpang to Dolon Nor, where it meets the trunk line of the Northwestern Railway system. This line covers a distance of about 480 miles, a greater part of which is on level land.

d. The Tungchin-Kerulen line. This is the fourth line that radiates from the Tungchin Railway centre. It runs in a northwesterly direction almost parallel with the Harbin-Manchuli line of the Chinese Eastern Railway, the distance between the two lines varying from 100 to 130 miles. The line starts from Tungchin on the north side of the junction of the Nonni and Sungari rivers and proceeds westward across the Nonni River to Talai, and then turns northwestward across the plain into the valley of the north branch of the Guileli River. After entering the valley, it follows the stream up to its source, then crosses the Great Khingan Mountain watershed into the Mongolian Plain by the Khalka River, and follows the right bank of this river to the north end of Bor Nor Lake. Thence it turns direct westward to the Kerulen River, and follows the south bank of the river to Kerulen. This line covers a distance of about 630 miles.

e. The Tungchin-Moho line. This is the fifth line that radiates from this railway centre. It starts from the north side of the junction of the Nonni and Sungari rivers, and proceeds northwestward across the northern end of the Great Manchurian Plain to Tsitsiha. At Tsitsiha, it joins the projected Kinchow-Aigun line and proceeds together northwestward alongside the left bank of the Nonni River as far as Nunkiang where it separates from the other. Thence it resumes the northwesterly direction and proceeds into the upper Nonni Valley until the headwater is reached. Then it crosses the northern extremity of the Great Khingan Range to Moho, where it joins the terminus of the Dolon Nor-Moho line. This line is about 600 miles long. About a quarter of this length runs on the plain, the second quarter runs along the lower Nonni Valley, the third along the Upper Valley, and the fourth runs in mountainous but gold-bearing region, where only physical difficulties are to be expected.

f. The Tungchin-Korfen line. This is the sixth line from the railway centre. It also starts on the northern side of the Nonni-Sungari junction, and proceeds across the plain by the cities Chaotung and Tsinggang. After Tsinggang it crosses the Tungkun River, proceeds to Hailun, and then, ascending the Tungkun Valley, crosses the watershed of the Little Khingan Mountain. Thence it descends into the Korfen Valley and proceeds by Chelu to Korfen on the right bank of the Amur River. This line covers a distance of 350 miles, two-thirds of which runs on comparatively level land and one-third in mountainous district. This is the shortest line from Tungchin to the Amur River and the Russian territory on yonder side.

g. The Tungchin-Yaoho line. This is the seventh line that radiates from this railway centre. It starts from the northern side of the Nonni-Sungari junction and traverses the plain on the left side of the Sungari River by Chaochow, then crosses the Chinese Eastern Railway, and the Hulan River to Hulan. After Hulan, it proceeds to Payen, Mulan, and Tungho, then crosses the Sungari River to Sansing, now called Ilan. Thence it proceeds into the Wokan Valley and crosses the watershed by Chih-singshitse and Takokai into the Nolohe Valley and passing by various villages and towns along this river to Yaohohsien, ends at the junction of the Nolohe and the Ussuri River. This line covers a distance of 500 miles in very fertile country.

h. The Tungchin-Yenchi line. This is the eighth line that radiates from this railway centre. It starts from the eastern side of the Nonni-Sungari junction and proceeds in a southeasterly direction on the right side of the Sungari River to Fuyu or Petunai and various towns along the road on the same side of the river until it comes across the Harbin-Talien Railway, then turns away from the road and proceeds eastward to Yushu and Wuchang. After Wuchang, the line turning more southward, proceeds to Fengtechang and then follows the same direction to Omu. At Omu, it crosses the Mutan River, then proceeds to Liangshuichuan and Shehtauho, where it joins the Japanese

Hweining-Kirin line and proceeds together to Yenchi. This line covers a length of about 330 miles through very rich agricultural and mineral country.

i. The Tungchin-Changpeh line. This is the ninth line that radiates from the Tungchin railway centre. It starts from the south side of the Nonni-Sungari junction and proceeds in a southeasterly direction across the plain to Nungan. After Nungan, it crosses the Itung River and proceeds continuously in the same direction across several branches of the same river to Kiudaichan, where it joins the Changchun-Kirin line and proceeds together as far as Kirin. After Kirin, it goes its own way following the right bank of the Sungari River in a southeasterly direction to the junction of Lafaho River and turns southward along the same bank of the Sungari to Huatien. After Huatien, it continues in the same course up to Toutaokiang, as far as Fusang, then turns southeastward into the Sunghsiangho Valley and proceeds upward to the Changpeh Shan watershed by skirting the south side of the Celestial Lake, then turns southward following the Aikiang River to Changpeh on the Korean frontier. This line covers a distance of about 330 miles. Some great difficulties are to be overcome in the last portion of the line where it crosses the Changpeh watershed.

j. The Hulutao-Jehol-Peking line. With this line I shall begin to deal with a new group of the Northeastern Railway System which will make Hulutao, the ice-free port on the Liaotung Gulf as their centre and terminus. This, the first line, starts from Hulutao and proceeds westward up the Shaho Valley to Sintaipienmen. Thence it crosses the mountainous district through Haiting, Mangniuyingtsé, and Sanshihkiatse to Pingchuan, and continues in the same direction to Jehol or Chengteh. After Jehol, it proceeds by the old imperial highway to Lwanping, then turns southwestward to Kupehkwow where it penetrates the Great Wall. Thence it follows the same highway through Miyun and Shunyi to Peking. This line covers a distance of about 270 miles.

k. The Hulutao-Kerulen line. This is the second line of the Hulutao radiation. It starts from this seaport and proceeds northward through the mountainous region of Jehol by Kienping and Chihfeng. Thence, the line follows the highway across the Upper Valley of Liaoho to Chianchang, Sitoo, Takinkou, and Linsi. After Linsi, it proceeds up the Lukiako Valley and crosses the watershed at the southern extremity of the Great Khingan Mountain, through Kanchumiao and Yufuchih. Then it proceeds to Payenbolak, Uniket, and Khombukure where it joins with the Dolon Nor-Kerulen line and proceeds together to Kerulen. This line up to Khombukure covers a distance of about 450 miles, tapping a very rich mineral, timber, and agricultural country.

l. The Hulutao-Hailar line. This, the third line, starts from Hulutao and proceeds by way of Chinchow along the west side of the Talingho River to Yichow, where it crosses the Talingho to Chinghopienmen and Fowsin. After Fowsin, the line goes northward to Suitung, thence, crossing the Siliaoho to Kailu, it proceeds between the Great and Little Fish Lakes to Kinpan and Tachuan. Then it proceeds across the Great Khingan Mountain into the Oman Valley and follows the same river to Hailar. This line covers a distance of about 600 miles passing through rich mineral and agricultural land and virgin forests.

m. The Hulutao-Antung line. This, the fourth line, starts from Hulutao and proceeding northeastward, follows the course of the projected Liaoho-Hulutao Canal, and then goes eastward to Newchwang and Haicheng. From there it proceeds southeastward to Simuchen, where it joins the Antung-Mukden line and proceeds together to Antung on the Korean border. This line covers a distance of about 220 miles. This together with the Hulutao-Jehol-Peking line will make the shortest line from Antung and beyond, *i.e.*, Korea, to Peking.

n. The Moho-Suiyuan line. With this as the first I am going to deal with another group of lines in this system. These will be the circumferential lines which link up the radii from the Tungchin centre in two semicircles, the outer and the inner. This Moho-Suiyuan line starts from Moho and proceeds along the right bank of the Amur River to Ussuri, Omurh, Panga, Kalkukang, Anlo, and Woshimen. After this point, the river bends more southward and the line follows the same bent to Ankan, Chahayen, Wanghata, and Huma. From Huma, it proceeds to

Sierhkenchi, Chila, Manchutun, Heiho, and Aigun where it meets the terminus of the Chinchow-Aigun line. After Aigun, the line turns more eastward to Homolerhchin, Chilirh, and Korfen where it meets the terminus of the Tungchin-Korfen line. Thence it proceeds to Wuyun, Foshan, and Lopeh. After Lopeh, it goes to Hokang at the junction of the Amur and Sungari. At this point, the line crosses the Sungari River to Tungkiang and proceeds to Kaitsingkow, Otu, and Suiyuan where it ends. This line covers a distance of 900 miles running all its way through the gold-producing region.

o. The Huma-Chilalin or Shihwei line. This is merely a branch of the Moho-Suiyuan line. It starts from Huma and follows the Kumara River passing by the Taleitse Gold Mine and Wapalakow Gold Mine. Then it proceeds up the Kumara River in a westerly and southwesterly direction to its southern source and there it crosses the watershed into the Halarh Valley, thence descending the valley to Chilalin or Shihwei. This line covers a distance of about 320 miles running in an extremely rich gold district.

p. The Ussuri-Tumen-Yalu-Coast line. This, the second line of the outer semicircle, starts by continuing the first line at Suiyuan, and proceeds along the left bank of the Ussuri River, passing Kaulan, Fuyeu, and Minkang, to Yaoho, where it meets the terminus of the Tungchin-Yaoho line. From Yaoho, it runs parallel to the Russian Ussuri Railway on the east side of the river as far as Fulin. After Fulin, it parts with the Russian line by turning westward following the Mulingho River to Mishan on the northwestern corner of the Hanka Lake. Thence it goes to Pinganchin, turns southward alongside the boundary line and crosses the Harbin-Vladivostok line at Siusuifen Station to Tungning. After Tungning, it continues the same southward course alongside the boundary line to a point between Szetaukow and Wutaukow, then turns westward to Hunchun, and northwestward to Yenchi where it meets the projected Japanese Hweining-Kirin line. From Yenchi, it follows the Japanese line to Holung, and proceeds southwestward by the left side of the Tumen River across the watershed into the Yalu Valley, where it meets the Tungchin-Changpeh line. After Changpeh it turns westward and northwestward following the right bank of the Yalu to Linkiang, thence southwestward, still following the right bank of the Yalu, to Tsianhsien and then continues in the same direction, along the Yalu bank, to Antung, where it meets the Antung-Mukden Railway. After Antung, it proceeds to Tatung-kow at the mouth of the Yalu, thence along the coast to Takushan and Chwangho, then westward through Situn and Pingfangtien to join the South Manchurian Railway at Wukiatusun. This line covers a distance of 1,100 miles, which runs from end to end right along the southeastern boundary of Manchuria.

q. The Linkiang-Dolon Nor line. This is the third line of the outer semicircle of the Tungchin railway centre, and connects the radiating lines south of the centre. It starts from Linkiang at the southwestward turn of the Yalu River, and proceeds across the mountainous region passing by Tunghwa, Hingking, and Fushun, to Mukden, where it crosses the South Manchurian Railway. From Mukden, it goes together with the Peking-Mukden line as far as Sinmin, where it crosses the Tungchin-Hulutao line and proceeds northwestward through Sinlihtun to Fowsin. After Fowsin the line enters the hilly district of the upper Liaoho Valley, and proceeds to Chihfeng, after passing through numerous small villages and camping places in this vast pasture. After Chihfeng the line proceeds through the Yinho Valley by Sanchotien, Kungchuling, and Tachientse, to Famuku, thence follows the Tulakanho to Dolon Nor, covering a distance of about 500 miles.

r. The Chikatobo-Sansing or Ilan line. This is the first line of the inner semicircle which connects the radiating lines from the Tungchin railway centre on the northeast. It starts from Chikatobo on the upper reach of the Amur, and proceeds eastward and southeastward through many valleys and mountains of the Great Khingan Range to Nunkiang. After Nunkiang, it goes in a more southerly direction to Keshan, thence to Hailun, and then crosses the Sungari to Sansing or Ilan. This line covers a distance of about 700 miles, passing through an agricultural and gold-producing country.

s. The Sansing or Ilan-Kirin line. This is the second line of the inner semicircle. It starts from Sansing and proceeds

southwestward along the right bank of the Mutan River through Tauchan, Erhchan, Sanchan, and Szuchan, to Chengtse where it crosses the Harbin-Vladivostok line. Then it goes to Ninguta, after crossing over the Mutan River from right to the left bank. After Ninguta it proceeds southwestward passing through Wungcheng, Lanchichan, Talachan, and Fungwangtien, to Omu. From Omu it joins the Japanese Hweining-Kirin line and proceeds westward to Kirin. This line covers a distance of about 200 miles, along the fertile Mutan Valley.

t. The Kirin-Dolon Nor line. This is the third line of the inner semicircle in the Tungchin system. It starts from Kirin and follows the old highway westward to Changchun where it meets the termini of the Chinese Eastern Railway from the north and the Japanese South Manchurian Railway from the south. After Changchun, it proceeds across the plain to Shuangshan where it meets the Tungchin-Hulutao line and the Japanese Szuping-kai-Chengkiatun-Taonan line. From Shuangshan, it crosses the Liao River to Liaoyuan, thence it traverses the vast plain, crossing the Tungchin-Great Northern Port line and goes to Suitung where it meets the Hulutao-Hailar line. After Suitung, it proceeds up the Liao Valley where it comes across the Hulutao-Kerulen line and then crosses the watershed to Dolon Nor where it ends. This line covers a distance of 500 miles. This completes the cobweb system of the projected North-Eastern Railway. The total length of this entire system is about 9,000 miles.

Part IV.—The Extension of the Northwestern Railway System

The Northwestern Railway System covers the region of Mongolia, Sinkiang, and a part of Kansu, an area of 1,700,000 square miles. This territory exceeds the area of the Argentine Republic by 600,000 square miles. Argentina is now the greatest source of the world's meat supply, while the Mongolian pasture is not yet developed, owing to the lack of transportation facilities. As Argentina has superseded the United States in supplying the world with meat, so the Mongolian pasture will some day take the place of Argentina, when railways are developed and cattle raising is scientifically improved. Thus the construction of railroads in this vast food-producing region is an urgent necessity as a means of relieving the world from food shortage. In the first program of this International Development Scheme, I proposed 7,000 miles of railways for this vast and fertile region, for the purpose of developing the Great Northern Port, and relieving the congested population of southeastern China. But this 7,000 miles of railways form merely a pioneer line. In order to develop this virgin continent properly, more railways have to be constructed. Therefore in this plan, namely, the Extension of the Northwestern Railway System, I propose the following lines:—

- a. The Dolon Nor-Kiakata line.
- b. The Kalgan-Urga-Tannu Ola line.
- c. The Suiyuan-Uliassutai-Kobdo line.
- d. The Tsingpien-Tannu Ola line.
- e. The Suchow-Kobdo line.
- f. The Northwestern Frontier line.
- g. The Tihwa or Urumuchi-Ulankom line.
- h. The Gaskhiun-Tannu Ola line.
- i. The Uliassutai-Kiakata line.
- j. The Chensi or Barkul-Urga line.
- k. The Suchow-Urga line.
- l. The Desert Junction-Kerulen line.
- m. The Khobor-Kerulen-Chikatobo line.
- n. The Wuyuan-Taonan line.
- o. The Wuyuan-Dolon Nor line.
- p. The Yenki-Ili line.
- q. The Ili-Hotien line.
- r. The Chensi-Kashgar line and its branches.
- a. The Dolon Nor-Kiakata line. This line starts from Dolon Nor and proceeds in a northwesterly direction, following the caravan road across the vast pasture to Khorkho, Kuoto, and Suliehto. After Suliehto, it crosses the boundary line into Outer Mongolia by the same road to Khoshentun, Lukuchelu, and Yangto. Thence it crosses the Kerulen River to Otukunkholato, and enters the hilly region where it crosses the Kerulen watershed and

the Chikoi watershed. The water from the Kerulen watershed flows into the Amur, and thence into the Pacific Ocean, while the water from the Chikoi watershed flows into Lake Baikal, and thence to the Arctic Ocean. After crossing the Chikoi watershed, it follows a branch of the Chikoi River to Kiakata. This line covers a distance of about 800 miles.

b. The Kalgan-Urga-Tannu Ola line. This line starts from Kalgan at the Great Wall, and proceeds northwestward up the plateau, crosses a range of hills into the Mongolian prairie, and goes to Mingan, Boroldshi, Ude, and Khobor, where it crosses the Dolon Nor-Urumuchi trunk line. After Khobor, it proceeds across the vast and rich pasture of Mubulan, then proceeds in a straight line through Mukata, Nalaiha to Urga. From Urga, it goes into the hilly district crossing Selenga Valley to a point opposite the southern end of Lake Kos Gol, and then turns northward across a range of mountains to Khatkhyl on the southern shore of Kos Gol. After Khatkhyl, it skirts Kos Gol Lake along the western shore for some distance, then turns northwestward and westward, following the course of the Khua Kem River to a point near its exit at the frontier line, then turns southwestward up the Kemtshik Valley to its headwater, passes through Pakuoshwo, and ends at the boundary line between the Russian and Chinese territories. This line covers a distance of about 1,700 miles.

c. The Suiyuan-Uliassutai-Kobdo line. This line starts from Suiyuan in the northwestern corner of Shansi, and proceeds in a northwesterly direction across the hilly country into the Mongolian pasture to Tolibolik, where it crosses the Great Northern Port-Hami line, and the Great Eastern Port-Urga line. After Tolibolik, it proceeds in a straight line in the same direction passing through Barunsudshi to the capital of Tuchetu. Thence it continues in the same straight line northwestward to Gorida. After Gorida, it follows the caravan road to Kolutikolik where it crosses the Great Northern Port-Urumuchi trunk line. From Kolutikolik, the line turns northwestward, then westward and proceeds across many streams and valleys and passes by many small towns to Uliassutai. At Uliassutai, it crosses the B. Junction-Frontier branch of the Great Eastern Port-Urumuchi line. After Uliassutai, the line proceeds westward following the trade road, passes through Khuduku, Bogu, Durganor, and Sakhibuluk to Kobdo. Thence the line turns northwestward to Khonga, Ukha, and Clegei, then westward to Beieu and ends at the frontier. This line is about 1,500 miles long.

d. The Tsingpien-Tannu Ola line. This line starts from Tsingpien at the Great Wall, on the northern border of Shensi, proceeds through the Ordos country by Bonobalgasun, Orto, and Shinchao, and then crosses the Hoangho to Santaoho. From Santaoho, it proceeds across Charanarinula Mountain into the Mongolian prairie in a northwesterly direction to Kurbansihata where it crosses the Peking-Hami line, then it goes to Unikuto and Enkin, where it crosses the Great Northern Port-Urumuchi line. After Enkin, the line enters into a valley and watered district, proceeds northward to Karakorum, and then turns northwestward across various streams and valleys of the tributary of the Selenga River by Sabokatai and Tsulimiau. After Tsulimiau, it proceeds in the same direction across the Selenga River, follows its branch, the Telgir Morin River, up to its source and crosses the watershed into Lake Teri Nor. Then it follows the outlet of the Teri Nor to the Khua Kem River, where it ends by joining the Kalgan Urga-Tannu Ola line. This line covers a distance of about 1,200 miles.

e. The Suchow-Kobdo line. This line starts from Suchow in a northwesterly direction penetrating the Great Wall at Chiennew, and proceeds to the coal field, about 150 miles from Suchow. Then it goes to Habirhaubuluk and Ilatoli. A short way from this place the line comes across the Peking-Hami line and then proceeds to Balaktai. After this the line passes a bit of pure desert to Timenchi. After entering the hilly and watered country it proceeds to Gaskhiun where it crosses the Great Northern Port-Urumuchi trunk line. After Gaskhiun, it proceeds to Wolanhutok, Tabateng, and Tabutu where it joins the Kucheng and Kobdo highway and following it, proceeds to Kobdo, through Batokuntai and Sutai. Here the line ends, covering a distance of about 700 miles.

f. The Northwestern Frontier line. This line starts from Ili following the Urumuchi-Ili line to Santai, on the eastern side

of Zairam Lake, then proceeds northeastward by itself to Tuszusai on the west side of Ebi Lake. After Tuszusai it proceeds to Toli where it crosses the Central Trunk line, that is, the Great Eastern Port-Tarbogotai line. Thence it goes to Namukotai and Stolokaitai by passing through a vast forest and a rich coal field. From Stolokaitai, the line follows the highway and proceeds to Chingwaszu, the capital of Altai province. Thence it crosses a mountain range by the Urmocaitu Pass into the Kobdo Valley, and follows the course of the Kobdo River to Belev where it joins the Suiyuan-Kobdo line and proceeds to Clegei. From Clegei, it proceeds by itself to Tabtu via Usungola and Ulanhon. At Tabtu, it joins the other line again and proceeds together to the Khua Kem River in the Tannu Ola district. It then turns eastward ascending the river to the junction of the Bei Kem and Khua Kem rivers, then starts again on its own course, following the former river and proceeds up to its source in a northeasterly direction ending at the frontier. This line covers a distance of about 900 miles.

g. The Tihwa or Urumuchi-Ulankom line. This line starts from Tihwa following the Dolon Nor trunk line to Fowkang, then proceeds by its own route almost northward through Chipichuan to Khorchute. From Khorchute, it turns northeastward and proceeds across a hilly district to Kaiche, then to Turhuta, where it crosses a branch line from Junction C. of the Great Northern Port-Urumuchi line. After Turhuta, it turns northward, proceeds up the Pakaningale Valley to Zehoshita, and then crosses the Tilikta Pass. Thence it turns northeastward proceeding across the newly cultivated country to Kobdo. After Kobdo, it proceeds through a fertile plateau, by crossing many rivers and skirting many lakes to Ulankom, where it ends by joining the Northwestern Frontier line. It covers a distance of about 550 miles.

h. The Gaskhiun-Tannu Ola line. This line starts from Gaskhiun and proceeds northeastward across a hilly and watered country through Hatonhutuk and Talangjoleu, to Pornulu. After Pornulu, the line proceeds across the Sapkhyn Valley by Huchirtu and Porkho to Uliassutai where it meets the Suiyuan-Kobdo, and the Great Eastern Port-Uliassutai lines. After Uliassutai, the line proceeds northward to a quite new country by first crossing the headwaters of Selenga, then the headwaters of the Tess River. In the Tess Valley the line crosses a vast virgin forest. After emerging from this forest it proceeds northwestward across the watershed into the Khua Kem Valley in Tannu Ola and ends by joining the Northwestern Frontier line. This line covers a distance of about 650 miles.

i. The Uliassutai-Kiakata line. This line starts from Uliassutai and runs on the track of the Gaskhiun-Tannu Ola line, until it reaches the Eder River, a branch of the Selenga. Then, turning off eastward, it begins its own course and proceeds downward following the course of the Eder River, crossing the Tsingpien-Tannu Ola line, to the junction of this river with the Selenga. There it joins the Kalgan-Urga-Tannu Ola line and proceeds together eastward in the common track for some distance until the other line turns southeastward, when this line turns northeastward following the Selenga down to Kiakata. This line covers a distance of about 550 miles, running through a fertile valley.

j. The Chensi or Barkul-Urga line. This line starts from Chensi or Barkul and proceeds northwestward across a cultivated region through Tutaku to Urkesiat. After Urkesiat, it crosses the Suchow-Kobdo line, then traverses the vast pasture on the north side of the Gobi Desert to Suchi and Dalantura. Thence it turns more northward across the Great Eastern Port-Uliassutai line, and the Dolon Nor-Urumuchi line to Tashunhutuk. After this point the line crosses the Suiyuan-Uliassutai line at Ologai and proceeds over the watershed into the Selenga Valley where it crosses the Tsingpien-Tannu Ola line at Saboktai. From here it turns eastward across a hilly and watered region to Urga. This line covers a distance of about 800 miles.

k. The Suchow-Urga line. This line starts from Suchow and proceeds by Kinta to Maumu, and then follows the Taoho or Edsina River, which waters this strip of oasis, to the lakes. Thence it crosses the Gobi Desert, where it meets the crossing lines of the Peking-Hami and the Great Eastern Port-Uliassutai railways and with them forms a common junction. From this

junction it proceeds across desert and pasture lands to another railway crossing which is formed by the Suiyuan-Kobdo and Tsingpien-Tannu Ola lines, also forming a common junction together. Thence it proceeds into pasture land through Hatengtut and Tolik to Sanintalai, where it crosses the Dolon Nor-Urumuchi line. After Sanintalai, the line proceeds through Ulanhoshih and many other small towns and encampments to Urga. This line covers a distance of about 700 miles. One-third of this length is through the desert and the other two-thirds through watered pasture land.

l. The Desert Junction-Kerulen line. This line starts from the Desert Junction, proceeds northeastward to the pastoral land and crosses the Tsingpien-Tannu Ola line south of Ulan Nor Lake. Thence it proceeds to the Tuchetu Capital where it crosses the Suiyuan-Kobdo line. After the Tuchetu Capital it goes across a pasture to Junction A. From Junction A. it proceeds to Ulanhutuk and Chientingche, then crosses the Kalgan-Tannu Ola line to Zesenkhana. From Zesenkhana, the line follows the course of the Kerulen River down in a northeasterly direction to the city of Kerulen, where it crosses the Dolon Nor-Kerulen line, and meets the Kerulen-Tungchin line. This line covers a distance of about 800 miles.

m. The Khobor-Kerulen-Chikatobo line. This line starts from Khobor, the crossing junction of the Dolon Nor-Urumuchi, and the Kalgan-Urga-Tannu Ola lines, and proceeds northeastward across a vast pasture to Khoshentun, where it crosses the Dolon Nor-Kiakata line. After Khoshentun, it proceeds in the same direction across a similar pasture to Kerulen, where it crosses the Dolon Nor-Kerulen line. Then it proceeds first along the right bank of the Kerulen River, then crosses to the left side, and passes along the northwestern side of Hulan Lake. After Hulan Lake, the line crosses the Chinese Eastern Railway, and the Arguna River, then proceeds along the right bank of the river to Chikatobo, where the line ends by joining the Dolon Nor-Moho and the Chikatobo-Sansing lines. This line covers a distance of about 600 miles. The first half of it runs on dry land and the second half on watered land.

n. The Wuyuan-Taonan line. This line starts from Wuyuan at the northwest bend of the Hoangho and proceeds northeastward across the Sheiten Ula Mountain and pasture to Tolibulyk, where it meets the crossing junction of three lines—the Peking-Hami line, the Suiyuan-Kobdo line, and the Great Eastern Port-Urga line. From Tolibulyk the line proceeds continuously in the same direction across a pasture to Khobor where it meets the crossing junction of the Dolon Nor-Urumuchi and the Peking-Urga lines, and also the terminus of the Khobor-Kerulen line. After Khobor the line turns more eastward and runs parallel with the boundary line of Outer and Inner Mongolia, across the Dolon Nor-Kiakata line midway to Khombukure, where it crosses the Dolon Nor-Kerulen and the Hulutao-Kerulen lines. At Khombukure the line passes to the south side of the boundary and proceeds along it to Dakmusuma, where it crosses the Dolon Nor-Kialar line. Thence it goes eastward across the Great Khingan Mountain to Tuchuan, then turns southeastward to Taonan, where it ends. This line covers a distance of about 900 miles.

o. The Wuyuan-Dolon Nor line. This line starts from Wuyuan and proceeds northeastward across the Sheiten Ula Mountain to Maomingan, where it crosses the Great Eastern Port-Urga line. Then it proceeds across the vast pasture and the Suiyuan-Kobdo line to Bombotu, where it passes over the Peking-Hami line. After Bombotu, the line turns eastward and proceeds across the Kalgan-Urga-Tannu Ola line, then goes to Dolon Nor, where it ends by joining the Dolon Nor-Mukden-Linkiang line, which forms a direct route from the upper Hoangho Valley to the rich Liaoho Valley. This line covers a distance of about 500 miles.

p. The Yenki-Ili line. This line starts from Yenki or Karashar, and proceeds northwestward across the mountain pass into the Ili Valley. It then follows the Kunges River downward, in a westerly direction, traversing a most fertile valley, to Ining and Kuldjo or Ili, the principal city of the Ili district near the Russian border, where it joins the Ili-Urumuchi line. This line covers a distance of about 400 miles.

q. The Ili-Hotien line. This line starts from Ili or Kuldja proceeds southward across the Ili River, then eastward along the

left side of the river and then southeastward and southward to Bordai. From here it turns southwestward into Tekes Valley and proceeding upward crosses the Tekes River to Tienchiao and then ascends the mountain pass. After the mountain pass the line turns southeastward, traverses a vast coal field and then turns southwestward to Shamudai, where it crosses the Turfan-Kashgar line. From Shamudai it turns southward across the fertile zone of the north side of the Tarim Valley, to Bastutalak. Then it proceeds southwestward to Hotien passing by on the way many small settlements in the fertile zone of the Hotien River which flows across the desert. At Hotien the line meets the Kashgar-Iden line. After Hotien the line proceeds upward to the highland south of the city and ends at the frontier. This line covers a distance of about 700 miles.

r. The Chensi-Kashgar line and its branches. This line starts from Chensi and proceeds southwestward along the Tien Shan pasture through Yenampo, Shihkialoong, and Taolaitse to Chikoching, then along the Tien Shan forest through Wutungkwo, Tungyenchu, Siyenchu, and Olong to Sensien, where it crosses the Central Trunk line. After Sensien it proceeds along the northern edge of the Tarim Desert through Lakesun City and Shehchuan to Hora, where it crosses the Cherchen-Koria line. From Hora the line proceeds along the course of the Tarim River, passing by many new settlements, fertile regions, and virgin forests, to Bastutakelak, where it crosses the Ili-Hotien line. Thence it goes through Pachu to Kashgar where it meets the Urumuchi-Iden line. After Kashgar it proceeds northwestward to the frontier where it ends. Attached to this line are two branches. The first branch proceeds from Hora southwestward through many oases to Cherchen. The second proceeds from Pachu southwestward along the Yarkand River to Sache and then westward to Puli near the frontier. This line including the branches covers a distance of about 1,600 miles. The total length of this entire system is about 16,000 miles. See general map.

Part V.—The Highland Railway System

This, the last part of my railway program, is the most difficult and most expensive undertaking of its kind; consequently, it must be the least remunerative of all the railway enterprises in China. So no work should be attempted in this part until all the other parts are fully developed. But when all the other parts are well-equipped with railways then railway construction in this highland region will also be remunerative, despite the difficulties and the highly expensive work in construction.

The highland region consists of Tibet, Kokonor, and a part of Sinkiang, Kansu, Szechuan, and Yunnan, an area of about 1,000,000 square miles. Tibet is known to be the richest country in the world for gold deposits. Furthermore the adjacent territories possess rich agricultural and pastoral lands. This vast region is little known to the outside world. The Chinese call Tibet "the Western Treasury," for besides gold there are other kinds of metals especially copper, in great quantities. Indeed the name of the Western Treasury is most appropriately applied to this unknown region. When the world's supply of precious metals are exhausted, we have to resort to this vast mineral bearing region for supply. So railways will be necessary at least for mining purposes. I therefore propose the following lines:—

- a. The Lhasa-Lanchow line.
- b. The Lhasa-Chengtou line.
- c. The Lhasa-Tali-Cheli line.
- d. The Lhasa-Taklongshong line.
- e. The Lhasa-Yatung line.
- f. The Lhasa-Laichiyaling line.
- g. The Lhasa-Nohho line.
- h. The Lhasa-Iden line.
- i. The Lanchow-Chochiang line.
- j. The Chengtu-Dzunsasak line.
- k. The Ningyuan-Cherchen line.
- l. The Chengtu-Menkong line.
- m. The Chengtu-Yuankiang line.
- n. The Suifu-Tali line.
- o. The Suifu-Mengting line.
- p. The Iden-Gortok line.

a. The Lhasa-Lanchow line. This is the most important line of this system for it connects the capital city of Tibet—a vast secluded region with several millions of people—with the central trunk line of the country. The route which it passes through is inhabitable and is already slightly inhabited in the region between the ends of the proposed line. So it will probably be a paying line from the beginning. This line starts from Lhasa, following the old imperial highway in a northward direction and proceeds by Talong to Yarh, which lies on the southeastern side of Tengri Nor Lake. After Yarh, the line turns more eastward and proceeds across the watershed from the Sanpo Valley to the Lukiang Valley by the Shuangtsu Pass. Thence turning more eastward the line proceeds across the headwater of the Lukiang to that of the Yangtze by passing many valleys, streams, and mountain passes. Then it crosses the main body of the Upper Yangtze, which is here known as the Kinshakiang, over the Huhusair Bridge. After crossing the bridge, it turns southeastward, then eastward across the Yangtze Valley into the Hwangho Valley, where it passes through many small towns and encampments into the Starry Sea region. At the Starry Sea, the line passes between the lakes of Oring Nor and Tsaring Nor. Thence it turns northeastward across the southeast valley of the Zaidam region, and returns into the Hwangho Valley again. Then it proceeds through Katolapo and various towns at Dangar, now called Hwangyuan, situated near the border between Kansu and Kokonor. After Dangar, the line turns southeastward following the course of the Sining River, proceeds downward through a very rich valley and passes through Sining, Nienpai, and hundreds of small towns and villages to Lanchow. This line covers a distance of 1,100 miles.

b. The Lhasa-Chengtou line. This line starts from Lhasa and proceeds on the former imperial highway by Teking and Nanmo to Motsukungchia. Thence it turns southeastward to Giamda. From Giamda, the line turns northward, then northeastward where it proceeds through the Tolala Pass to Lhari. After Lhari the line goes in an easterly direction and passes Pianpa, Shih-tuh, and many small towns to Lolongchong. Thence it crosses the Lukiang by the Kayu Bridge and then turns northeastward to Kinda and Chiamdo. After Chiamdo, the line instead of following the imperial highway southeastward to Batang, turns northeastward, following another trade route, and proceeds to Payung at the northwestern corner of Szechuan. From Payung, it proceeds across the Kinshakiang over the bridge near Sawusan-tusze. The line then turns southeastward, enters the Ichu Valley and proceeds downward to Kantzu on the Yalung River. Thence it proceeds to Chango and Yinker, to Badi on the Great Golden River, and Mongan on the Little Golden River. After Mongan, the line goes through the Balan Pass to Kwanhsien, and entering the Chengtu Plain, reaches Chengtu by Fih sien. This line covers a distance of about 1,000 miles.

c. The Lhasa-Tali-Cheli line. This line starts from Lhasa by the same track as the Lhasa-Chengtou line as far as Giamda. From Giamda, it proceeds by its own track southeastward, following a branch of the Sanpo River to Yulu, where this branch joins its main stream. After Yulu, it follows the left bank of the Sanpo River passing by Kongposaga to Timchao. From Timchao, the line turns away from the Sanpo River and proceeds in an eastward direction to Timchong city, Ikung, Kuba, and Shuachong. After Shuachong, the line proceeds southeastward to Lima thence eastward to Menkong on the Lukiang. From Menkong, the line turns southward along the right bank of the Lukiang passing Samotung to Tantau. Then crossing the Lukiang, it proceeds across the watershed through Gaiwa village to the Lantsang (or Mekong) River, and to Hsiaoweisi beyond it. After Hsiaoweisi, it follows the river bank to the Chenghsin Copper Mine, thence it turns away from the river and proceeds by Hosi, Erhyuan, Tengchow, and Shangkwang to Tali. From Tali, the line proceeds to Hsiakwang, Fengyi, Menghwa, and then meets the Lantsang River again at Paotien. Thence it follows the left bank southward right through to Cheli, where it ends. This line covers a distance of 900 miles.

d. The Lhasa-Taklongshong line. This line starts from Lhasa and proceeds southward by way of Teking to the Sanpo River where turning eastward it follows the left bank of the river to Sakorshong. After crossing the Sanpo River to Chetang, it

proceeds southward by Chikablung, Menchona, Tawang, Dhirang-jong to Taklungshong and continues farther on until it reaches the Assam frontier. This line covers a distance of 200 miles.

e. The Lhasa-Yatung line. This line starts from Lhasa and proceeds southwestward by Chashih following the former imperial highway by Yitang, Kiangli to Chushui. At Chushui, it crosses the Sanpo River over the Mulih Bridge to Chakamo on the south side, thence to Tamalung, Paiti, Tabolung, and Nagartse. After Nagartse, the line turns westward to Jungku, Lhaling, and Shachia. At Shachia, the line leaves the former imperial highway and turns southwestward again and proceeds via Kula to Yatung at the Sikkim border. This line covers a distance of 250 miles.

f. The Lhasa-Laichiyaling line and branches. This line starts from Lhasa and proceeds northwestward by Chashih following the former imperial road to Little Taking, and westward to Yangpachin and Sangtolohai. Thence turning southwestward, it proceeds to Namaling and Tangto, and crosses the Sanpo River at Lhaku. After Lhaku, the line turns westward to Shigatse, the second important city in Tibet whence it proceeds in the same direction to Chashihkang, Pangcholing, and Lhatse all on the right side of the Sanpo River. From Lhatse, a branch line starts southwestward via Chayakor, Dingri to Niehlamuh on the Nepal border. The main line, however, crosses to the left side of the Sanpo River and proceeds on the same highway via Nabringtaka to Tadum where another branch line proceeds southwestward to the Nepal border. The main line continues northwestward via Tamusa and Choshan to Gartok, thence turning westward it proceeds to Laichiyaling on the Sutlej River and ends on the Indian border. This line, including the two branches, covers a distance of 850 miles.

g. The Lhasa-Nohho line. This line starts from Lhasa and runs in the same track as line (*e*) to Sangtolohai where it proceeds by its own line northwestward to Teching, Sangchashong, and Taktung. Thence, it enters into the richest gold field in Tibet and through Wengpo, Tulakpa, Kwangkwei, and Ikar reaches Nohho, where the line ends. It covers a distance of 700 miles.

h. The Lhasa-Iden line. This line starts from Lhasa, following the common track of lines (*f*) and (*g*) to the southwestern corner of Tengri Lake, whence it proceeds by its own track northwestward by Lungmajing, Tipoktolo and four or five other small places to Sari. After Sari, the line penetrates a vast tract of uninhabited land to Pakar and Suketi. Thence crossing the mountain passes and descending from the highland to the Tarim Basin through Sorkek to Yasulakun, the line joins the Cherchen-Iden railway of the Northwestern System and proceeds on the same track to Iden. This line covers a distance of 700 miles.

i. The Lanchow-Chochiang line. This line starts from Lanchow, on the same track of the Lhasa-Lanchow line as far as southwestern corner of the Lake of Kokonor. Thence it proceeds on its own track by skirting along the southern shore of Lake Kokonor to Dulankit, where it turns southwestward to Dzunsasak. From Dzunsasak, the line proceeds in a westerly course along the southern side of the Zaidam Swamp, and passes Tunyueh, Halori, Golmot to Hatikair. After Hatikair, the line turns northwestward by Baipa, Nolinjoha, to Orsinte. Thence turning more northward, it proceeds across the mountain range by Tsesinvitusik and Tuntunomik to Chochiang, where it ends by joining the Ansi-Iden and Chochiang-Koria lines, covering a distance of 700 miles.

j. The Chengtu-Dzunsasak line. This line starts from Chengtu and proceeds to Kwanhsien on the track of the Lhasa-Chengtu line, thence northward on its own track by Wenchuan, to Mauchow. Then, it proceeds northwestward following the course of the Minkiang to Sungpan. After Sungpan, it ascends the Min Valley passing Tungpi to Shangle Yao, where it crosses the watershed from the Yangtzekiang side to that of the Hwangho. Thence the line proceeds to Orguseri, and following a branch of the Hwangho to the northwestern turn of its main stream, it proceeds along its right bank via Chahuntsin to Peilelachabu. There it crosses the Hwangho to the northwest turn of the old imperial road, where it joins the Lhasa-Lanchow line and proceeds as far as Lanipar. Then turning northwestward, it proceeds by its own line to Dzunsasak, where it ends by joining the Lanchow-Chochiang line. This line covers a distance of 650 miles.

k. The Ningyuan-Cherchen line. This line starts from Ningyuan and proceeds in a northwestward direction via Hwai-yuanchen to the Yalungkiang. Then it ascends along the left side of that river to Yakiang, and crossing to the right side of that river it proceeds by the old post road to Siolo, where it turns away from the river and follows the same post road to Litang. From Litang it proceeds in the same direction but follows another road to Kangtu, on the left side of the Kinshakiang. Following the same side of the river, it proceeds to Sawusantusze, where it crosses the Lhasa-Chengtu line. After Sawusantusze, the line continues in the same direction and follows the same side of the Kinshakiang via Tashigompa, to Huhusair Bridge, where it crosses the Lhasa-Lanchow line. Then following a northern branch of the Kinshakiang to its source and crossing the watershed, it proceeds along the caravan road by Hsinszukiang and Olokung to Cherchen, where it ends, covering a distance of about 1,350 miles. This is the longest line of this system.

l. The Chengtu-Menkong line. This line starts from Chengtu and proceeds southwestward by Shuangliu, Hsintsin, Mingshan, to Yachow. From Yachow, it turns northwestward and proceeds to Tienchuan, then westward to Tatsienlu, Tunyolo, and Litang. After Litang, the line proceeds southwestward through Bamutang, Yakalo to Menkong, covering a distance of about 400 miles of very mountainous country.

m. The Chengtu-Yuankiang line. This line starts from Chengtu on the same track of the Chengtu-Menkong line, proceeds to Yachow and thence by its own track in the same direction via Jungching, to Tsingliu. After Tsingliu, the line proceeds southward through Yuehsi to Ningyuan, where it meets the head of the Ningyuan-Cherchen line. After Ningyuan, it goes to Kwaili, then crosses the Kinshakiang to Yunnanfu where it crosses the Canton-Tali line. From Yunnanfu, it proceeds along the west side of the Kunming Lake to Kunyang, and through Hsinshing, Hsingo, to Yuankiang, where the line ends by joining the Canton-Szemo line. It covers a distance of about 600 miles.

n. The Suifu-Tali line. This line starts from Suifu and proceeds along the left bank of the Yangtzekiang, to Pingshan and Lupo. After Lupo, it turns away from the river in a southwesterly direction and scales the Taliangshan Mountains to Ningyuan, where it crosses the Chengtu-Yuankiang line and meets the termini of the Canton-Ningyuan line and the Ningyuan-Cherchen line. Thence continuing in the same direction, it crosses the Yalungkiang to Yenyuan and Yungpeh. After Yungpeh, the line turns more southward, across the Kinshakiang to Tsuchuan and thence to Tali, where it ends by meeting the Canton-Tali line and the Lhasa-Tali line. It covers a distance of about 400 miles.

o. The Suifu-Mengting line. This line starts from Suifu on the same track as the Suifu-Tali line as far as Lupo. From Lupo, it goes on its own track across the Yangtzekiang, here known as the Kinshakiang, and follows the right side of that river upward to its southward bent where it crosses the Chengtu-Yuankiang line, to Yuanmow. From Yuanmow, it proceeds to Tsuyung, where it crosses the Canton-Tali line, thence to Kingtung. After Kingtung, it proceeds southwestward across the Lantsangkiang to Mekong River, to Yunchow, thence turning southwestward, it follows a branch of Lukiang River to Mengting and ends on the frontier. This line covers a distance of about 500 miles.

p. The Iden-Gortok line. This line starts from Iden, and proceeds southward along the Keriya River to Polu, thence following the caravan road up the highland to Kuluk. From Kuluk, it proceeds southwestward via Alasa, Tunlong to Nohho, where it meets the terminus of the Lhasa-Nohho line. After Nohho, it skirts around the eastern end of the Noh-tso Lake to Budok and proceeds southwestward to Demchok, on the Indus River. From Demchok, it proceeds southwestward following the Indus River up to Gortok, where it ends by joining the Lhasa-Laichiyaling line. This line covers a distance of about 500 miles. This highland system totals about 11,000 miles.

Part VI.—The Establishment of Locomotive and Car Factories

The railways projected in the Fourth Program will total about 62,000 miles; and those in the First and the Third Programs about 14,000 miles. Besides these, there will be double tracks in

the various truck lines, which will make up a grand total of no less than 100,000 miles, as stated in the preliminary part of these programs. With this 100,000 miles of railways to be constructed in the coming ten years, the demands for locomotives and cars will be tremendous. The factories of the world will be unable to supply them, especially at this juncture of reconstruction after the great world war. So the establishment of locomotive and car factories in China to supply our own demands of railway equipment will be a necessary as well as a profitable undertaking. China possesses unlimited supplies of raw materials and cheap labor. What we need for establishing such factories is foreign capital and experts. What amount of capital should be invested in this project, I have to leave to experts to decide.

I suggest that four large factories should be started simultaneously at the beginning—two on the coast and two on the Yangtze. Of those on the coast, one should be at the Great North-

ern Port, and the other at the Great Southern Port—Canton. Of those on the Yangtze, one should be at Nanking and the other at Hankow. All four are in centres of both land and water communication, where skilled labor can easily be obtained. They are also near our iron and coal fields. Besides these four great factories, others should be established at suitable centres of iron and coal fields when our railways will be more developed.

All the factories should be under one central control. The locomotives and cars of our future railways should be standardized so as to make possible the interchange of parts of machinery and equipment. We should also adopt the standard gauge, that the 4-ft. 8½-in. gauge, which has been adopted by most of the railways of the world. In fact, almost all the railways hitherto built in China are of this gauge. The purpose of the proposed standardization is to secure the highest efficiency as well as the great economy.

The Wild Men of Borneo

PROBABLY the most interesting account ever

written of the wild men of Borneo—the Dyaks who have defied attempts to tether them to western civilization—comes from the pen of a contributor to the *Eastern Illustrated Review*. Head-hunting, we are told, survives despite official prohibition. The Dyak suitor, "especially a chief that seeks the hand of a fair maiden must give to her convincing proof of his bravery by bringing a fresh human head. The solemn ceremony of putting off the mourning for a dead chief demands a human head. When a harvest is completed to propitiate the evil spirits a head is surely wanted. For does not this practice bring to the household, and to the community in general the purest of blessings, health and wealth?"



Dyak Man and Wife in Gala Dress

"Table Manners" among these wild folk are deliciously primitive. This is how they do it:—

"On all ordinary occasions, the family eat together usually only twice a day morning and evening in the family room. In the centre of the room is placed a large wooden dish piled high with boiled rice, and then as a plate for each member of the family is set, a piece of fresh banana leaf whereon are a little salt and a small quantity of powdered dried fish highly odorous. This is the usual bill of fare, but it may be supplemented with a sort of mush or stew of fern froud sprouts and rice or with boiled caladium roots and roasted mild yams. When there is a feast, and guests from neighboring houses come to dine, the meals are spread, and the menu is enlarged with pork and chicken, cooked in joints of bamboo, which have been stoppered at both ends with

green leaves, and put in the fire until they are burnt through, when the cooking is done to a turn.

"All hands are plunged into the common dish of plain boiled rice, and it is excellent form to cram and jam the mouth as full as it will hold. They extract samsoo from the palm but seldom drink it. Their principal luxury consists in the chewing of betel-nut and lime. This habit is anything but becoming as it renders the teeth quite black, and the lips of a high vermilion."

Here is a peep at the wild women of Borneo:—

"The women, especially the mountain girls, if not beauties, have many most beautiful points; and at all events are very interesting and pretty. They have good eyes, good teeth and good hair. They are affable and of good manners. They are, however, very scantily dressed. The dress consists of a petticoat (kain) drawn lightly round the waist, and reaching to the knee, and in addition a klambi or jacket worn when out of doors. They wear finger rings, ear-rings and bracelets. They bore the lobes of ears, both men and women, and these elongated lobes with a weight of heavy ear-rings hang far below the neck in the case of women. The women consider blackening of the teeth as a beauty. Sometimes the teeth are filed concavely in front or are filed down till almost level with gums. Another curious way of treating the front teeth, is to drill a hole in the middle of each tooth, and fix in it a brass stud."

"In the matter of marriages they have a curious custom. Having nothing like privacy in day time, the young man who woos a girl, goes to her house in the night. She generally sleeps in a separate room, and the man-in-love enters the room, when the members of the girl's household are asleep, and wakes up the girl, and offers sireh. The girl if she likes to marry this man accepts the sireh; if she does not, she curtly dismisses him, and the man has to try his chances on some other girl. When the girl likes, she permits her lover to pay nocturnal visits every day or as often for two or three hours a night or even till just before daybreak for several weeks together. When the parents come to know of this, and agree to the choice their daughter has made, they keep quiet. Then the man and girl live in such intimate terms during this courtship as if they were really married, and this, as they say, is to ensure progeny, for every Dyak likes to be a father. As soon as the signs of pregnancy manifest themselves, marriage of the parties is arranged, and generally the husband goes, and lives in the wife's house. Before formal marriage girls are loose, and can be in the best of terms with the young men of her choice. Once a girl is betrothed but not married, the man pays the nocturnal visits just to see, if the marriage would be fruitful. If the woman does not conceive, the man chooses another girl, and there is no shame to another man if he woos the same girl. For, marriage



Dyak Children, Wearing Corsets of Brass Wire

is considered necessary solely for the sake of children. As in other Eastern countries men and women marry at an early age—the one when about eighteen to twenty, and the other about sixteen. Polygamy is not practised, and each man has got only one wife. We have said that generally the husband goes, and lives in his bride's parents' house. The tyranny the mother-in-law exercises over the husband is enormous, and so is the case when the bride lives in her husband's house.

"As has already been said a woman does not consider her lover brave, if he does not prove his bravery by bringing a fresh head of an enemy. It is not possible for one to enter into an enemy's village, and kill a man, and bring away his head, for, the moment a stranger with head-hunting intentions enters a village, the alarm gong is sounded, and the whole village after putting the women and children in the houses sets itself to repulse the intruders. When the attacking force is large the defending party takes to boats that are moored close by, and sail off in retreat. Even when a party or tribe goes out, and attacks another village, the defending party takes particular care to carry off with them as they retreat the bodies of their comrades, who may have fallen, for they do not want the bodies to be cut by the enemy, and the heads be carried away as trophies. So it is not possible for every man, who seeks the hand of a maiden, to bring a fresh head in a straightforward, manly fight. Often the bridegroom stealthily goes to a neighboring village, and way-lays any man or woman going to the field or to draw water, and murders, and after cutting out the head comes away. To show one's bravery, any head would do—man's, woman's or even child's. Only the people of one's village must not be killed, but only those of the enemy of a different village. A European traveller once asked a chief 'O Sabilah (blood-brother), why is it that all you people kill one another, and hang up these heads? In the land I come from, such a thing is never known; I fear that it would be ill-spoken of these, indeed, perhaps thought quite horrible. What does Aban Avit think of it?' He turned to me in utter absolute surprise at first with eyes half-closed, as doubting that he heard aright, and letting the smoke curl slowly out of his mouth for a moment, he then replied with unwonted vehemence:—'No, Tuan. No the custom is not horrible. It is an ancient custom a good beneficent custom bequeathed to us by our father, and our fathers' fathers; it brings us blessings plentiful harvests, and keeps away sickness, and pains. Those who were once our enemies hereby (that is after being killed) become our guardians, our friends, our benefactors.' 'Don't you feel he sorry' I asked 'for those that you kill?' 'Ah, Tuan,' he replied 'you feel just as I did, when I was a little boy, and had never seen blood. But I out-grow such feelings, as every one should. My father, a very great warrior, and known, and feared by the people. He wanted his sons to be as brave and fearless as he was himself. So, one day he dragged out into the jungle old widow Lahing, and tied her fast to a tree by rattans on wrists and ankles. She was a slave woman captured, when she was a young girl by his grandfather; and at the time I speak she was very old, and weak, and very thin, and could not do any work, because she was nearly blind. My father told my brother yonder and me and one or two other boys, all of us little

fellows then, that we must go out with spears, and learn to stick them in something alive, and not to be afraid to see blood nor to hear screams—then I felt just as you do. Besides, I was really very fond of old widow Lahing; she it was who tied my first waistcoat for me; I remembered it well, for she laughed a great deal at me, and then I saw how few teeth she had, and she often used to sing me to sleep with a song. I couldn't bear the thought of hurting her, and sending her away to Long Julian, so I flatly refused to take a spear with me. But my father said I must, there was no harm in it, that it was right, and I must take one, he pulled me by the arm and I had to follow. Then I was afraid she might see me, so I sneaked round behind the tree and just pricked her with the point of the iron, then she guessed what my father had tied her for, and screamed as loud as she could! 'Oh, don't! Oh, don't! Oh, don't!' over and over again, and very fast. I pricked a little harder the next time to hear what she would say, but she only kept on shrieking the same words. Then one of the other boys, smaller even than I, ran his spear right through her thigh like this, and the old people laughed, and said that was good; and the blood ran down all over the wrinkles on her knees; and then I wanted to make it run just in the same way, so I pushed, and pushed my spear hard into her, and after that never thought whether it was widow Lahing or not, I just watched the blood; we all ran round her piercing her here, and piercing there until she sank right down on the ground with her hands in the rattan loops above her head, which tumbled over to one side, and no more blood come out of her. Then my father praised us all loudly, and me in particular, and said we had been good boys, and had done well! How could I feel at all sorry then for the old thing? I thought that I had only obeyed my father, and that I was a great warrior, and could wear horn hill's feathers and tiger-cat's teeth. That is the way to become a man. No man can be brave who does not love to see his spear draw blood.'"

U. S. Trade with Far East

Washington, Oct. 8.

According to statistics issued by the Bureau of Foreign and Domestic Commerce, American trade with the Far East for the first eight months of this year amounted approximately to 20 per cent. of the total foreign trade of the country, exports totalling \$755,000,000 and imports \$1,115,000,000, being increases of 135 and 421 million dollars respectively compared with the same period last year.—*Reuter*.

JAPANESE DEMAND FOR TEXTILE MACHINERY.—With the imports of textile machinery into Japan increasing in value from \$2,000,000 to \$8,000,000 in the last three years, U.S. Consul Frazer believes the present financial depression is only a temporary check to the general demand for all varieties of this machinery in the Kobe district. It is of interest to note that before the war the United States supplied less than 1 per cent. of the spinning and weaving machinery brought into Japan, while in 1918 and 1919 more than half of the imports of textile machinery came from the United States.

NEW CALIBRES FOR JAPANESE RIFLES.—The employment of several foreign experts by the Japanese Army for directing the manufacture of new heavy ordnance, is being followed by a similar move to remodel the small arms. According to the *Kokusai News Agency*, the Japanese army is now contemplating adopting a rifle of larger calibre. Hitherto, the rifle used by the infantry was of a 6.5 millimetre calibre. The rifles used by the French have a calibre of 8 millimetres; those of Germany, a calibre of 7.6 millimetres; while those of Britain and America are respectively of 7.7 and 7.6 millimetres.

It is also proposed to enlarge the calibre of the machine-guns in the Japanese army, and to shorten the gun barrel.

The Philippine Asbestos Industry

By W. H. OVERBECK, C.E., Technical Director of the Ilocos Asbestos Products Co.

IN 1917 I conducted some experiments with Philippine asbestos found in Ilocos Norte Province, P. I. In the beginning only amphibole asbestos of very soft and short fiber was obtainable. In a small plant built at Manila the following asbestos articles were manufactured: Asbestos roofing, asbestos sideboards, asbestos shingles, asbestos steam-pipe coverings, high-grade asbestos cement, asbestos stucco, asbestos ceiling boards, asbestos mastic, and asbestos paints.

The trend of modern architectural and municipal thought in the erection of buildings is generally directed toward the utilization of fireproofing or fire-retarding materials. In this type of

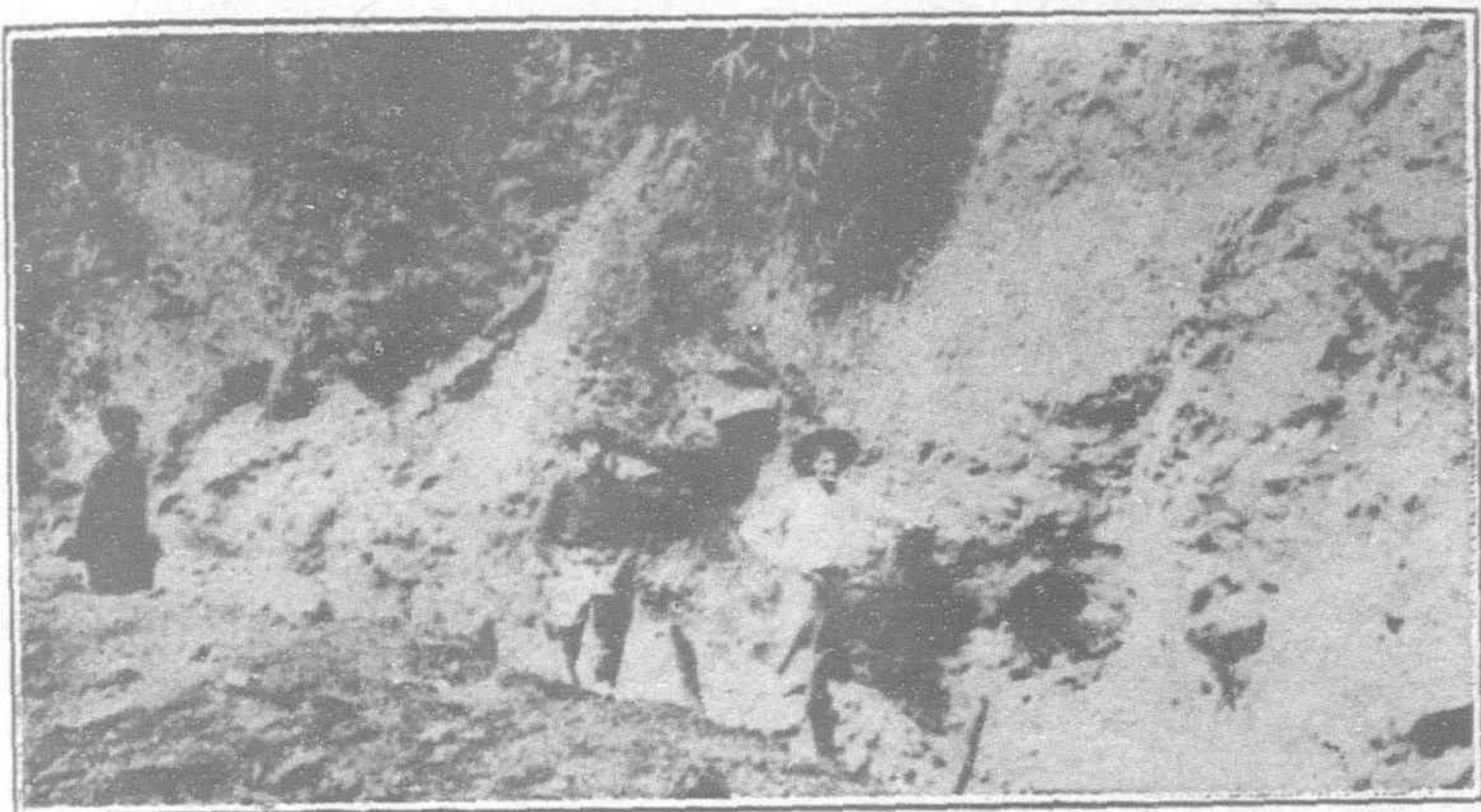


Fig. 1. Asbestos Mine in Ilocos Norte

construction asbestos plays an important part. Asbestos is a natural heat insulator and its silky and flexible fibers are capable of manipulation into any form.

One of the largest future uses for asbestos fibers, which promises to become the largest future use for the clean short fiber, will be in the manufacture of asbestos roofing slates. The present demand for asbestos fiber in the manufacture of slates amounts to about 50,000 tons a year in the United States, and it is still increasing daily.

Asbestos building material is practically indestructible by atmospheric influences, so the maintenance expense for roofs covered with this material is minimized.

For a period of three months the asbestos-cement slate absorbs and assimilates moisture in exactly the same ratio as the best natural slate. After that the absorption ceases altogether, and the material becomes impervious, indestructible, and very hard. The stringy asbestos fibers, which by the characteristic peculiarity of a patented process are embedded crosswise in the cement paste, have exactly the same effect as steel in concrete construction. They impart to the asbestos slate extremely high physical strength, affording resistance either to blow or to shock, as well as great elasticity, which qualities are as important as durability and length of service.

The insulating capability of asbestos, when subjected to either heat or cold, imparts an increased importance to asbestos-cement slate, and makes its use suitable not only in the Tropics, where it is commonly used as a corrugated iron, but also in the continental climate, where it is economically used in workshops, in dwelling houses, and particularly in garrets, which with other roof coverings would have to remain unoccupied.

The fireproofing quality of asbestos renders asbestos-cement slate a thoroughly fireproof material which, owing to its strictly scientific manufacture, does not crack, rent, or scale in case of fires.

ASBESTOS AS AN INSULATING MATERIAL.—Asbestos is used in various ways for the purpose of preventing the radiation of heat

from pipes, boilers, tanks, etc. As an insulating material it is claimed to be superior to most of the other non-conducting materials, both because of its capability of resisting heat, and because, being fibrous, it adheres better to smooth surfaces than do powdery substances. Numerous varieties of pipe and boiler coverings are on the market, and the large number of companies that make this class of product a specialty is evidence of the commercial importance this article has attained in the world.

The Ilocos Asbestos Products Company manufactures an asbestos cement containing 90 per cent. asbestos fiber, which forms a light, porous covering that partakes of the nature of felt and cement, and is applied while hot to boiler or pipe surface.

Another mode of using asbestos for covering pipes is to form it in sectional pieces, which are placed on the pipes and connected by means of iron bands or canvas. This mode of applying asbestos has the unique advantage that not only can the covering be easily put on and taken off the pipe, but the same covering may be used for a considerable length of time. Special sectional pieces of such covering are made to fit elbows, tees, crosses, and other fittings.

ASBESTOS STUCCO.—Asbestos stucco consists of asbestos and serpentine, and is consequently incombustible and fireproof. Its value, therefore, as a protection against fire when used for plastering walls and ceilings, is undeniable.

Asbestos stucco is now used in fireproof buildings in many American and European cities and other parts of the world, and it forms one of the principal fireproofing materials. It is generally made in two qualities, the "rough" asbestos stucco and the "finish" asbestos stucco. The former may be applied to the walls of a new building, upon brick, metal lath, plain boards, or expanded metal, and when dry will form a coating of the nature of asbestos felt board, which is used so much in the United States. This is then covered again with the "finish" which is carefully prepared with pure asbestos fibers of remarkable fineness.

ASBESTOS MASTIC.—This product is a cementlike composition that is spread in one solid, unbroken layer over an entire roof, without a single lap, seam, joint or nail in the whole roof. It may be used for protecting new roofs over felt, concrete, wood sheathing, etc., or for resurfacing old felt, wood sheathing, or like materials.

No matter how old or worn a roof may be, it can be made absolutely waterproof with a coat of this preparation. It is not necessary to tear up the old material, as the plastic roofing can be spread directly over any warped or torn portions and will permanently stop the leaks. Aside from this application it might also be used as a caulking for ship bottoms; for stopping leaks in skylights; for repairing rain spouts, gutters, and val-



Fig. 2. Exterior of Asbestos-products Factory, Santa Ana, Manila

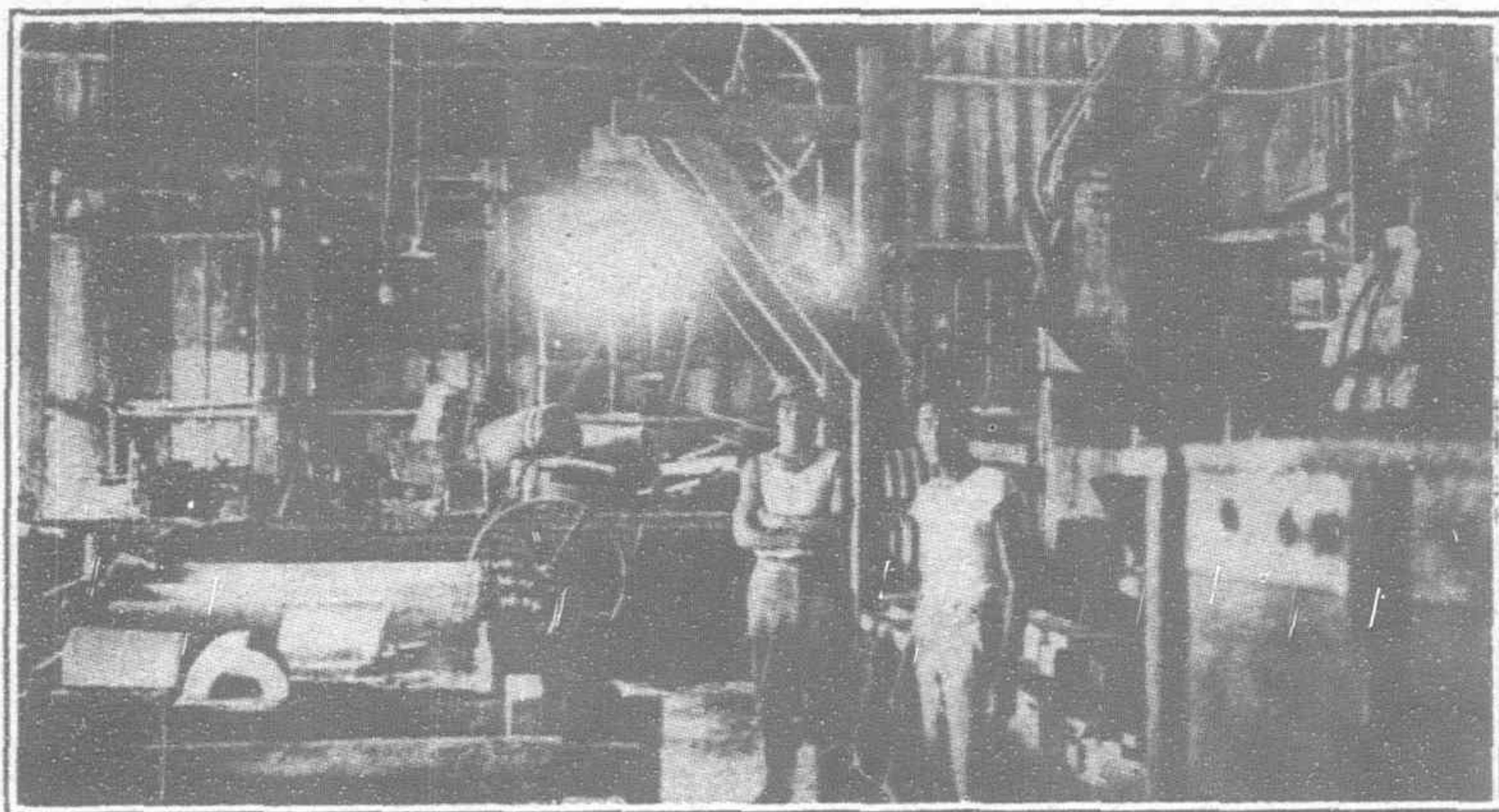


Fig. 3. Interior of Asbestos-products Factory, Santa Ana, Manila

leys; for sealing up metal flashings; and for repairing leaks in copings, sidewalks, driveways, cisterns, tanks, etc.

The product is a combination of semidrying, carbonaceous materials which are thoroughly interlaced with long-staple asbestos fibers, and tempered by chemical fusion with heavy, waterproofing oil that adds materially to the life of the cement and so tempers the product that it will neither sag nor run at even the extreme of 200° F.

ASBESTOS PAINT.—The manufacture of fireproof paint has, in recent years, assumed considerable importance. Nearly all manufacturers of asbestos goods make also asbestos paint in various colors. These paints are suitable for rough woodwork, such as joints, rafters, beams, stairs, warehouses, and wooden structures of all kinds. Numerous public experiments have been conducted from time to time in the United States proving the remarkable fire-resisting qualities of asbestos paint. All asbestos products above mentioned have been manufactured for the last two years by the Ilocos Asbestos Products Company in Manila.

The Chinese Financial Consortium

Organization Completed at Conferences in Washington and New York.

ORGANIZATION of the Chinese financial consortium has been completed. On September 28 a joint note was presented at Peking by the ministers for the United States, Great Britain, France and Japan. On October 9 a conference was held at the state department, Washington, Ambassador Sir Auckland Geddes being accompanied by Sir Charles Addis, London manager of the Hongkong and Shanghai Bank. Mr. B. G. Davis, of the state department, and Ambassador Shidehara of Japan took part in the deliberations which were preliminary to the meeting of the four groups—American, British, French and Japanese—begun next day in New York at the offices of Messrs. J. P. Morgan, Wall and Broad streets. The final agreement was signed on October 15. Mr. Thomas W. Lamont, head of the American group, presided and was elected chairman of the consortium. There were sixteen delegates present in addition to Mr. Frederick W. Stevens, who is coming to Peking as the representative of the American group, and including Sir Charles Addis, M. Rene Delachaume (representing the French group) and Mr. Takeuchi (representing the Japanese group).

The New York correspondent of the *Times* states that the Chinese Consortium agreement reads:—

“The national groups are of opinion that the interests of the Chinese people can in the existing circumstances be best served by co-operative action by the various banking groups, representing the investment interests of their respective countries, in procuring for the Chinese Government the capital necessary for its programme of economic reconstruction and improved communications. With these objects in view the respective national groups are prepared to participate on equal terms in such undertakings as are calculated to assist China to establish her great public

utilities and to these ends to welcome the co-operation of Chinese capital.”

The Belgian group will have a one-ninth interest and the other groups a two-ninths interest each. It is understood that the Japanese reservations with regard to the Shantung Railway, like the American reservations with regard to the Grand Canal improvement project, are due to small technicalities of a purely ephemeral character. In order to ensure the uninterrupted progress of the Consortium's wide-reaching plans for the development of China, the agreement provides for joint diplomatic action at Peking in the event of competing proposals for loans being attempted.

A *Reuter's* dispatch of October 16 says:—The delegates to the Consortium Conference have inserted in the agreement a clause defining the attitude of the Consortium towards China. This stated that they believed that Chinese interests would best be served by the co-operative action of the various national banking groups assisting the Chinese government to obtain capital. It added that the bankers undertook the financing of the country at the request of their government, and did not desire to have any special advantage or to exercise domination. Finally, it declared that the co-operation of Chinese capital would be welcomed.

The second meeting was held in the offices of the New York Chamber of Commerce on October 13. During the adjournment for luncheon the delegates were the guests of the Bond Club. Short speeches were made by the heads of the delegations, outlining the problems of the Consortium to the members of the Club. *Reuter* says:—

At the close of the afternoon session, the following statement was made by Mr. Thomas Lamont:—

“The present Consortium is the only one, on record officially, in welcoming the co-operation of local Chinese capital in the work of the Consortium in the development of China's public enterprises, the building of railways, etc. The Consortium has passed a resolution to be communicated to its representatives at Peking that they shall make clear to the Government and people of China that the co-operation of a Chinese group, formed of representatives of the nation and prepared to undertake the obligations involved, will be encouraged.”

In issuing the statement Mr. Lamont emphasized the importance of the decision to administer capital in the development of China, a question not covered by the Old Consortium.

Speaking at the luncheon, Mr. Lamont said that the Consortium was not considering an immediate loan. That question would come later, possibly in the near future, but only upon application by China herself.

Sir Charles Addis, the British representative, said that the Chinese had the capacity for self-government, but that the high hopes for the Republic had not been fulfilled because the political parties had not been able to provide a working constitution. He said that China could only be politically safe through her own exertions. The utmost that the Consortium could do was to assist. By the contemplated action of the Consortium China could reduce her military forces, which were absorbing a fourth of the country's revenue.

Other speakers said that they were not yet considering specific plans for China, but were outlining an extensive program for the financial rehabilitation.

TRADE OPPORTUNITIES IN SIAM.—A correspondent of the *Manchester Guardian* points to certain promising openings of trade in Siam, a country in which western ideas are rapidly spreading. Plans for increasing the 895 miles of railway will in the near future call for rolling stock and all kinds of railway material. Bangkok is the port through which practically all the trade of the country passes, exports exceeding imports in value and consisting mainly of rice. The chief import is cotton goods from England and India, with gunny bags, manufactures of metal, silk goods, tobacco, cigars, and cigarettes ranking next in order of value. There is also demand in Siam for paper, matches, machinery, medicines, china and earthenware, oils, cordage, leather and manufactures thereof, electrical apparatus, and paints and varnishes.

FAR EASTERN IRON AND STEEL

A SUB-COMMITTEE of the financial and economic commission, which has been for some months investigating ways and means for promoting the steel and shipbuilding industries of Japan, has recommended the amalgamation of the six principal steel and iron works into one large semi-official trust under the leadership of the government steel works, with a capital of about Yen 400,000,000. The combination is to include: The Japan Steels Works, Ltd.: works at Muroran, Hokkaido; The Kamaishi Iron Works: works at Kamaishi, Iwate Prefecture; The Toyo Steel Works, Ltd.; The Anshan Iron & Steel Works: works at Anshan, South Manchuria; The Mitsubishi Iron Foundry: works at Kenjiho, Korea; The Pensihu Iron Works: works at Pensihu, Manchuria; The Government Steel Works: at Yawata, Kyushu. Other iron and steel companies may join this combination. The committee recommends that the national steel industry be self-contained and self-supporting and able, not only to supply the home demand, but export about 20 per cent. of the output. It also recommends the increase of the duty on iron and steel to about 25 per cent. *ad valorem*, instead of the 15 per cent. now imposed, but that steel for shipbuilding and shipbuilding machinery be exempted.

The iron resources of the empire are estimated at 70,000,000 tons of 60 per cent. ore in Japan proper, about 50,000,000 tons in Korea and 6,000,000 tons in South Manchuria from which about 1,500,000 tons of steel can be manufactured annually. There are, in addition, deposits of 30,000,000 tons of 35 per cent ore in Japan proper, and about 100,000,000 tons in Korea, and an equal amount in South Manchuria, from which 3,750,000 tons of steel can be annually obtained if properly developed.

According to a recent report the quantity of iron and steel required by Japan for the next eight years is as follows:—

Year	Total Iron Required	Total Steel Required	Grand Total
1920	430,000	1,123,000	1,553,000
1923	533,800	1,568,000	2,101,800
1925	617,500	1,786,000	2,403,500
1928	744,000	2,111,000	2,855,000

The above estimate of iron required refers only to iron not wanted for making steel. Nor does it include iron imported from foreign countries. If imported iron be put at 92,000 odd tons, the average of recent years, then the total iron and steel required for 1923 would be altogether 2,193,800 tons. In 1916 the total output of iron in Japan was 423,000 tons, but for 1923 the aggregate is estimated at 1,217,000 tons. Therefore, there has been a deficit of 400,000 to 500,000 tons a year in recent years, and in 1923 this deficit will increase to over 1,000,000 tons. The following figures furnished by the Japanese Ministry of Agriculture and Commerce indicate the production of iron and steel within Japan as well as its "spheres of influence," during the next few years:—

Date	Place	Pig Iron	Steel	Steel Product
1920	Japan	960,000	1,770,000	1,260,000
	Korea	100,000	50,000	40,000
	Manchuria	250,000	20,000	20,000
	Total	1,310,000	1,840,000	1,320,000
1921	Japan	1,060,000	1,920,000	1,400,000
	Korea	100,000	50,000	40,000
	Manchuria	250,000	60,000	50,000
	Total	1,410,000	2,030,000	1,490,000
1922	Japan	1,110,000	2,000,000	1,470,000
	Korea	100,000	50,000	40,000
	Manchuria	250,000	60,000	50,000
	Total	1,460,000	2,110,000	1,560,000

Date	Place	Pig Iron	Steel	Steel Product
1923	Japan	1,150,000	2,030,000	1,490,000
	Korea	100,000	50,000	40,000
	Manchuria	250,000	60,000	50,000
	Total	1,500,000	2,140,000	1,580,000

The production of iron and steel in Japan, therefore, shows an encouraging growth from year to year. Nevertheless there will still be a deficit, in 1923, of one million tons of pig iron which must be imported from China or produced from the development of home sources. Of Japan's iron output in 1923 of 1,000,000 tons China will contribute 500,000 tons of ore; and of its two million tons of steel, one-half will be manufactured from the cast iron produced in China.

In the event of continued unrest in that country, and the failure of China to fill her many contracts for the supply of ore, Japan will be thrown largely upon her own resources or importations from other countries. The finding of the investigating committee therefore indicates that Japan is determined to be self-supporting as far as possible through the development of home resources and the new properties in Korea and Manchuria, and to do this, every encouragement must be given the infant industry in the way of protective tariffs and other measures that will insure to the manufacturers control of the home market.

The committee also recommends that the present mercantile fleet of about 3,000,000 tons, be renewed and replaced to the extent of ten per cent., or 300,000 tons per year, and, as the home steel industry cannot supply the requirements for this amount of new shipbuilding, they must be imported from Great Britain and America. The imposition of a higher duty on ship steel would therefore operate as a hardship and blow to the shipbuilding industry, and the Committee recommends that shipbuilding materials should be exempt from duty, while all other steel and iron ware be subjected to the ten per cent. increase. This would have the effect of stimulating the proposed trust to confine its activities to rails, bars, rods, sheets, and structural shapes, leaving the heavier shipbuilding materials to be furnished, in part, by the government works at Yawata and by importations.

* * *

JAPANESE GOVERNMENT STEEL WORKS.—As a result of the economic depression the output of the Japanese government steel works at Yawmata may show a decline of 100,000 tons this year. According to plans for the present fiscal year, the foundry was expected to produce 400,000 tons of iron and steel, but since April 1 it has been obliged to curtail the scope of its operations. The foundry is now disposing of its output at the average price of Y.230 per ton, and if this rate is maintained it will be able to make a profit of Y.3,500,000 as originally planned.

* * *

NEW PACIFIC FREIGHT RATES ON STEEL.—The application of the Nippon Yusen Kaisha and Toyo Kisen Kaisha to increase the freight rate on asphalt and 29 other articles on the return voyage on their North American lines has been granted by the Japanese government. The rate of increase range from 20 to 50 per cent. The new rates on more important items being as follows:

	per cent.
Iron and iron manufacture	20 to 50
Lead (lump)	20
Animal skins	11
Oils	11
Paper	33
Machinery and locomotives	10 to 46

Engineering, Financial, Industrial and Commercial News

RAILWAYS, NEW LINES, SUPPLIES, ETC

Railway Sleeper Contract.—The Chiyoda Company of Toyama were the successful bidders for the supply of sleepers for the new tramway under construction in Toyama prefecture. The price for 16,660 ties was Y.38,318.

Plant for Canton-Hankow Line.—The Canton-Hankow railway has ordered 12 new heavy locomotives (eight for freight and four for passengers), and is about to order 90 large freight cars (30 of 30 ton size and 60 of 40 ton size).

Japan's Railway Construction Program.—Japan's railway construction program approved at the last session of the Diet covers a period of ten years and embraces the construction of 76 new lines at an estimated cost of Y.579,818,000. Forty-eight of these are to be light railways estimated to cost Y.225,000,000. Main lines number 28, estimated to cost Y.355,000,000. The program for the present financial year calls for the construction of 25 new sections aggregating 284 miles at a cost of Y.59,000,000. Three of these sections, 17.3 miles in length, have been completed and opened to traffic, four more will be completed in October and another four in November. The total mileage of these 8 new sections is 84.5. The remaining 180 miles of new lines to be constructed during the present fiscal year are expected to be in operation by March. The maintenance estimates for the 926 miles of old lines will be carried out despite the falling off in revenues, estimated at Y.17,000,000 during the fiscal year. Half of this will be recovered by retrenchment and the other half from the surplus of last year. The credit of Y.55,000,000 authorized by the Diet for this year's maintenance will be found and expended according to program.

New Railway Yard, Nagoya.—The Railway Department has appropriated Y.700,000 for the purchase of 250,000 *tsubo* of land required for the construction of the new freight yards near Nagoya. The yard will be laid out to conform to the Haupt system and located on the east side of the present Inazawa station and will be five miles in length and 750-ft. wide. Two locomotive houses will be erected.

New Private Railway, Japan.—The Sagami Tramway Company, Limited, is pushing ahead the construction of the line from Chigasaki-machi to Hachiji City. The Kagawa Station is completed and the Samukawa station nearing completion. Ten miles of rail have been purchased for the extension to Otsugi and two locomotives obtained from the Railway Department. It is expected that the first section of the line will be opened to traffic in November.

Four Track Kobe-Osaka Line.—The work in enlarging the existing railway between Kobe and Osaka into a four-track line is going steadily ahead. The preliminary work between Higashinada and Ashiya, covering 5½ miles, is finished, while in the section between the Noda Signal Station, near Kanzaki, and Higashinada the buying of necessary land has been completed, and the work is being extended to the east from Higashinada. The completion of the quadruple track will be

followed by that of the overhead railway line in Kobe.

Japan's Delegate to Paris Conference.—The Japanese government has appointed Dr. Sango Satake, lately of the Railway Department, as one of Japan's commissioners at the International Communications Conference at Paris.

South Manchurian Railway Depression.—According to reports published in Japanese papers, the S.M.R. Company anticipates a decrease of at least 20 per cent. in its revenues as a result of the depression, but it is said that the bulk of this decrease will be made good by the discharge of superfluous employees and other economies. The railway receipts up to September 11, show a decrease of Y.2,459,353 under the estimates, while the subsidiary enterprises have suffered a decrease of revenues of 20 to 40 per cent. The estimated revenues of the company for the current year (Y.200,000,000) are expected to be reduced to Y.160,000,000.

New Railway Extensions Completed.—The following extensions or new lines in Hokkaido will be opened for traffic by the Railway Department within the next two months: Nayori Line, 14 miles between Shimokawa and Kamibe; and 33.6 miles between Nakayubetsu and Okotsu; Soya Line, 10 miles between Asagino and Onishibetsu; Nemura Line, 21.6 miles between Atsutoko and Wada.

Proposed Cable Tramway, Kobe.—The Improvement Committee of this port advocate the opening of a new residential district at Shiogahara near the Futatabi Hill and to connect the district with the city by a cable tramway which is estimated to cost Y.1,700,000.

New Line Opened, Japan.—The Boseki Railroad Company opened for traffic on September 23 the new line between Nami and Hasi, a distance of about five miles.

New Line Opened, Korea.—Another section of the Kankyo line in Korea, from Kinjo will be opened to traffic on October first. Construction of this line was started in July 1918 and concluded July, 1920.

Heijo-Gensan Railway.—The construction of the Heijo-Gensan (Pyongyang-Wonsan) railway has been definitely decided. It will start from Heijo (Pyongyang), traversing several market places along the Mozan (Maingsan) route such as Shajinjo (Sainchang), Zisan (Chasan), and Inzan (Eunsan), till it reaches the town of Sinsori (Sinchangli). Thence the route will turn to the right as far as Kiso (Kichang) in Tongchon District. From Kiso the railway will pass along the bank of the Pulsei River and penetrate the mountain regions. From Sekiso (Sakchang) the railroad will proceed along the Hei-gen (Pyongyang-Wonsan) highway as far as Jun-u (Syunoo), traversing *en route* Paeup; when the route will diverge to the left, go through the Katchalyang hill district down to the Yutu river basin till it reaches Kwanhei (Byongpyong), from this place it will turn to the right as far as Kogen (Kangwan), the terminus of the railway going over the craggy mountain path of the Tol-

yang parallel with the Tokchi river on the way to Jonairi (Songnaili).

The railway will be 132½ miles long and the total cost of construction is estimated at Y.52,000,000. This enormous figure demonstrates the great difficulties with which the construction of the railway is expected to be attended. About sixty tunnels (aggregating over 69,000 feet in length) are included in the work, of which the tunnels through Mt. Kotchalyong and Mt. Tolyong will each measure more than a mile. The steepest grade of the line will be 1/80. A bill for the project is arranged to be included in the budget of the next fiscal year. If it passes, the work will be commenced from 1927. The work will be started both from Heijo and Kogen (Kangwan), the lines finally being connected. The South Manchuria Railway Company will undertake the construction.

Building Locomotives for Japan.—The manufacture of locomotives has been undertaken for the first time by the Matsukasado Dockyard, Yamaguchi-ken, under the management of the Kuhara firm. In the course of this year, 12 engines are expected to be constructed. Hitherto, only the Kawasaki Dockyard and the Osaka Train Company were engaged in this work in Japan.

Hamatsu Railway Shops.—The Railway Department will erect a large foreign style building at their Hamatsu Works, to be used as a hall, library, gymnasium and general entertainment building.

Canton-Hankow Railway Loan.—The Chinese government purposes to raise the necessary funds to construct the Chuchow-Hengchow section on the Canton-Hankow Railway for a distance of 48 miles. The cost of construction is estimated at \$13,900,000.

Japanese Railway Program.—The construction program of the Railway Department for the next ten years provide for 28 main lines with the expenditure of Y.354,951,576 and 48 light railways involving a cost of Y.224,866,798, making a total expenditure of Y.579,818,374. This program comprises an additional estimate of Y.64,880,000 for the establishment of 5 lines and Y.153,810,000 for the establishment of 21 light railways, which was approved by the recent extraordinary session of the Diet.

Rolling Stock, Japanese Government Railways.—The railway authorities have been contemplating the reconstruction of the third-class carriages for long distance travel, for some time, but owing to the many suggestions made, actual work began only recently. For that reason there are only a few such carriages available for the Tokaido line. Railway officials hope to put these new coaches on all the lines throughout the country within the current year. In the new coaches the seats are considerably wider while every seat is so made that it can be converted into a sleeping berth, for use at the cheap price of 30 sen. The plans of the Railway Department for 1919 called for the construction of 346 passenger cars, of which 230 have been completed, and 61 electric passenger coaches of which 26 have been finished. The plans for 1920 call for 337 passenger coaches of which 83 are com-

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pleted, and 1,453 freight cars which are being turned out as rapidly as possible.

Korean Railway Operating Loss.—A rough estimate of the loss on the year's working of the Korean Railways is Y.5,800,000. It is hoped to save Y.5,000,000 and bring this down to Y.800,000 by reducing the number of employees and effecting an economy in coal.

Nationalization of the Chuitsu Railway.—The Railway Department has completed its arrangement for the purchase of the Chuitsu Railway at a cost of about Y.7,000,000, and will issue a domestic loan for this purpose.

New Line Opened.—The Noitsu Railway in Gifu Prefecture has been completed and will be opened for traffic on October 19.

Private Railways Demand Compensation.—The construction program of the Japanese government in conflicting with the lines of some of the private companies, has resulted in demands for compensation on the part of three of these companies. The Odawara Electric Railway Company, operating the line between Kozu and Odawara is paralleled by the new government line has asked for damages. The Light Railway Company operating a line 12 miles in length between Kurozawajiri and Iwasaki, Iwate Prefecture, requests the government to buy its line because of similar competition and the Tone Tramway Company which operates a light railway between Shibukawa and Numada, Gumma Prefecture, of 13 miles in length, also requests the government to take over its line. The Railway Department is considering how these demands may be met in compliance with the law providing for the protection of private railways.

To Start Construction of New Lines, Peking.—Reuter tells us that Mr. Kong Shih-to, a member of the House of Representatives, editor of the *Min Su Pao* and treasurer of the International Press Club, has decided to construct the Tsangchow railway as a means of providing constructive employment to sufferers from the famine.

It is also decided to proceed with the Chefoc-Weihsien railway before the end of the year. Mr. Chow Teh-san, the engineer-in-chief of the Tsinpu railway, has been appointed chief engineer of the Chefoc-Weihsien railway.

New Private Railway, Japan.—The Japan Woollen Manufacturing Co., Ltd., has applied for a permit to construct a private tramway from Hoden station on the Sanyo main line to their works, a distance of two miles.

Peking-Suiyuan Loan Terms.—The terms of the short term loan for the construction of the Cho-Tze section of the Peking-Suiyuan railway are: The amount of the loan is one million silver dollars: flotation begins from the 1st instant and concludes on December 31 next: interest on the bonds will begin from the date of payment of subscriptions and will be paid monthly until December 31 at the rate of $7\frac{1}{2}$ per cent. per annum. The period of the loan is one year, January to December 1921. After December 31 next interest will be paid in half-yearly instalments. \$90,000 will be paid monthly from the revenues of the Peking-Suiyuan railway as security for the loan.

Japanese Railway Bond Issue.—The Japanese government announces a railway bond issue amounting to Y.20,000,000 bearing interest at 5 per cent. The bond will be put on sale on November 1 next and continue until November 11.

Proposed Harbin-Heilungchiang Railway.—Consul-General Pontius reports from Mukden that the Peking government, with a view to facilitating communication, has proposed to build a railway

between Harbin and Heilungchiang. Though it is maintained by the three governors of Manchuria that funds for the purpose should be raised by the eastern provinces, it is suggested that foreign loans are necessary for the consummation of the plans. —*Daily Commerce Reports.*

Railway Construction, Siam.—The extension of the Siamese Northern Railway, which has been in progress for several years, was hindered during 1919 owing to the difficulty of getting rails and other materials from abroad, but the embankments for the extension have been completed up to the city of Chiangmai. The southern line was completed and joined up with the British railway system of the Federated Malay States and international traffic was inaugurated on the west coast in the fiscal year 1917-18. During 1918-19 the embankments on the east coast branch of this line were completed up to the Kelantan frontier. On the Siamese Eastern line an extension toward French Indo-China is also under consideration with the object of linking up with new lines extended from the later country, and eventually it is hoped to establish through railway connections between Bangkok and Saigon. The surveys for this purpose are already in progress and are to be completed within two years' time. A number of Siamese students are being sent each year to the United States to study railway engineering and management. Under the efficient directorship of the Commissioner General of the State Railways, modern methods are rapidly being introduced and the entire workings of the railways will eventually be unified, and in due time the standard-gauge portions of the railways may be converted into meter gauge so that it will be possible to run trains through to Rangoon and Burma, and Saigon, Indo-China. The 24-hour notation of time and the metric system of weights and measures are used on all the State railways in Siam.—U.S. Commerce Reports.

ELECTRIC LIGHTING, TRACTION, POWER, ETC.

New Electric Manufacturing Company.—The Kobe Electric (Ball?) Company, Ltd., has opened a branch in Shidzuoka City. The capital of the concern is Y.600,000. It manufactures machine tools and electrical supplies. The managing director is S. Mochizuki of Shidzuoka.

Electrical Amalgamation.—The Nagoya Electric Light Company, at a meeting held on October 25, will consider the proposition to amalgamate with the Gifu Electric Company.

American Electric Plant and Water System for Kulum.—According to a vernacular newspaper, influential Mongolians at Peking are negotiating with the China-American Trading Co. with a view to installing an electric plant and water system in Urga.

Nationalization of Electric Plants.—In view of the popular demand for the nationalization of the electric plants, the minister of communication has ordered the immediate investigation of the water power situation in the country. A nationalization bill was introduced at the last session of the diet, but failed to pass.

Hydro-electrical Plants in Japan.—Although the slump in industry will retard the completion of the hydro-electric plants now under construction in Japan, Commercial Attaché James F. Abbott, of Tokyo, believes that some half-a-dozen new plants will be producing by 1925. It is stated that the Tonegawa should be producing 10,000 kilowatts

in 1922 and the Inawashire 20,000 kilowatts in 1923. —*Daily Commerce Reports.*

New Hydro-Electric Projects, Japan.—The Nagoya Electric Company is interested in a scheme to construct a hydro-electric plant on the Yahagi River in Aichi Prefecture, utilizing a head of 420 feet from which it is expected that 2,000 kilowatts can be obtained. The application of the Sagami Electric Power Company to utilize the water of the Aciyama River for a hydro-electric plant, was granted on September 24. The estimated cost of the plant is Y.237,000.

Osaka Electric Light Company.—This company, after its failure to sell its plant to the city, has decided to double its capital to Y.43,200,000 and demand from the city the necessary permit for the increase.

Electrical Enterprises, Japan.—The government statistics show that up to the end of July, 1920, there were 778 electrical enterprises in Japan, capitalized at Y.1,218,390,961, of which 685 companies furnish light and power, 41 operate electric tramways and 53 light, power and tramways. The above includes hydro-electric plants in operation aggregating 502,285 kilowatts, and 180,313 kilowatts generated by steam. Under construction are 459,207 kilowatts hydro-electric installations and 161,743 kilowatts in steam generated plants. Compared with the end of last year this shows an increase of Y.123,360,888 in capital and 40,514 in kilowatts. During the month of July six new enterprises capitalized at Y.675,000 were organized. During the same period four new plants capitalized at Y.475,000 commenced operations, while twelve small installations aggregating 4,276 kilowatts were under way.

Vladivostok Electric Light and Tramways.—A recent report states that the Mitsubishi Company has secured from the Vladivostok government the right to operate the electric railways and supply light in that city. The fact that the Vladivostok government has conceded such rights to a private concern testifies to the financial embarrassment of the Vladivostok government.

It is stated that when the government decided on the sale of the concession a keen competition arose between the Mitsubishi and a Russian subject named Kogan, in which the Japanese company came out successfully due to the activities and efforts of Mr. Kyoji Yamanouchi, manager of the Vladivostok branch of that company. Having secured the rights which will greatly add to the economic and commercial influence of the Japanese company, the company is formulating a business plan for putting its acquired rights into execution and extending its business influence in Vladivostok with Mr. Yamanouchi as the head of the committee specially designated for the purpose.

Keijo Electric Company, Korea.—This company has called up the third installment in its capital of Y.600,000, on December 1st.

New Tawa River Hydro-Electric Plant Proposed.—At a meeting of the shareholders of the Kinugawa Hydro-Electric Company held at Tokio on October 1st, it was decided that if the municipality decided to utilize the water power of the lower Tawa River, the company would transfer their activities to the upper reaches of the same river and erect a new hydro-electric plant of 10,000 kilowatts at a cost of Y.18,000,000.

Takasago Electric Supply.—Electrical current for Takasago, formerly supplied by the Akashi Electric Company, since February of this year has been obtained at a much lower rate from the Harima Hydro-Electric Company, resulting in a great increase of motors for industrial establishments. In one month the income was increased

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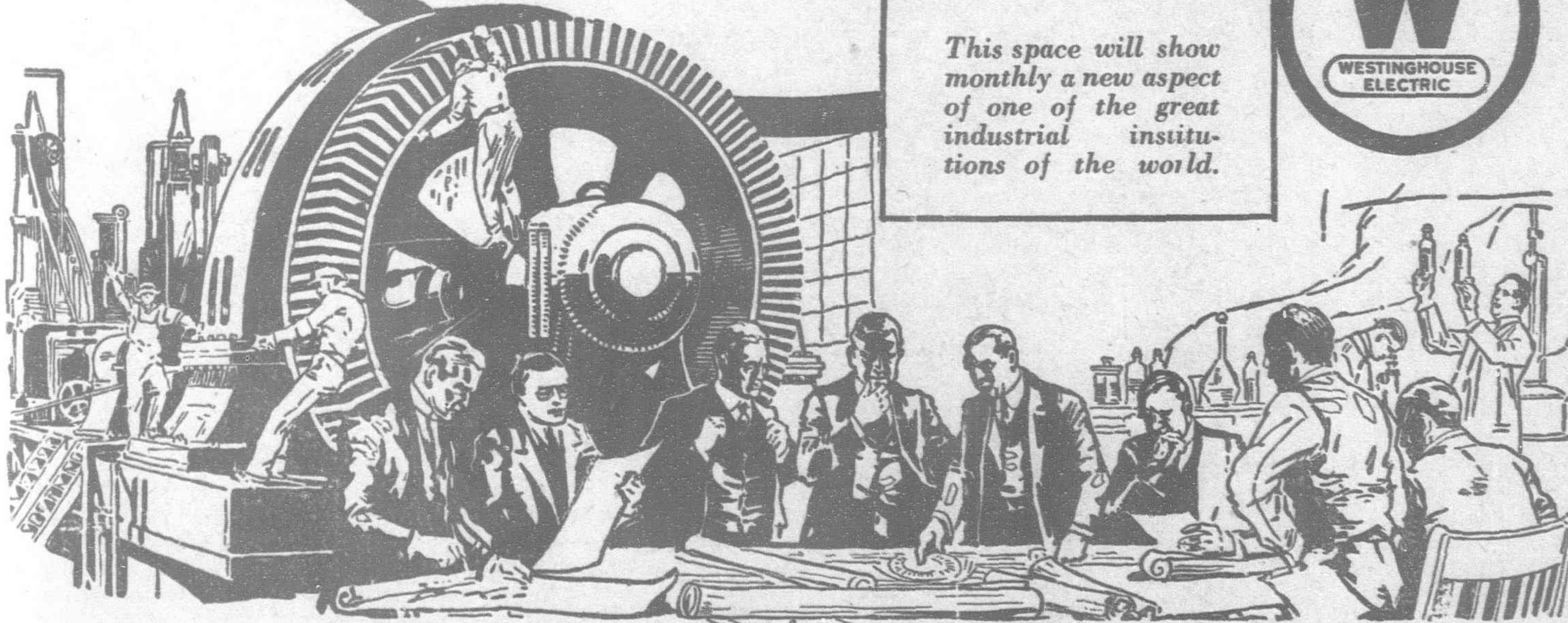
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Y.4,000, and it is now expected that the Mitsubishi paper mill will take 400 horsepower, and the Kanebo Cotton Mill another 200, while the lighting for the new harbor just completed will call for an additional supply from the Harima Company.

Yahagi Hydro-Electric Company.—This company has applied for permission to extend its transmission lines to supply the town of Nukata, in Aichi prefecture.

Nippon Hydro-Electric Company, New Plant.—The Nippon Denrioku Kabushiki Kaisha will construct a new plant at Nakahara-machi, Gifu prefecture, where considerable amount of hydraulic power is available. The governor of the prefecture has already given his assent and the preliminary engineering work has been started.

Miyagi Prefecture to Own Plants.—The prefecture of Miyagi has appropriated Y.200,000 to investigate the water resources of power in the prefecture. It is intimated that the prefectural government intends to buy out the different power companies. Owing to present financial conditions, most operating companies approve this proposal.

Fuji Hydro-Electric Power.—The Japanese Railway Department some time ago opened negotiations with the Fuji Hydro-Electric Company for the supply of 1,500 kilowatts for the new Atami line, but owing to the high price asked, the negotiations were dropped and the government decided to build its own steam power plants. As financial conditions have changed, the Fuji company has reopened negotiations with every prospect of a satisfactory result.

New Electrical Laboratories, Japan.—The Ministry of Communications has decided to establish branch electrical laboratories at Fukuoka and Fukushima. The inspection of electrical apparatus which has been effected at Tokyo only will henceforth be conducted within the factories producing such apparatus.

Hanshin Tramway (Kobe) Dividends.—Report for the current term submitted to the general meeting of shareholders on October 25:—

	Yen
Net Profits	1,219,921
Brought Forward	544,760
Total	1,764,682
Reserve	61,000
Bonus	85,000
Dividend (13 per cent. per annum)...	918,125
Carried Forward	550,557

Electrical Mergers, Osaka.—Following the successful amalgamation of the three largest electrical companies in the Osaka district, negotiations are now in progress for the merging of the Kwansai Hydro-Electric and the Osaka Electric Light Company, which are expected to be successful. Another scheme for the amalgamation of the Ujikawa Electric and the Nippon Electric Supply Companies has been revived. The former is capitalized at Yen 25,000,000 of which Yen 18,750,000 is paid up, with a bonded indebtedness of Yen 5,000,000; the latter company is capitalized at Yen 50,000,000 of which one-fourth is paid up. It is reported that an understanding has been reached.

Small Chinese Towns Waiting for Electric Supply.—Several small Chinese towns of from 4,000 to 20,000 inhabitants are hoping that electric light, with all its manifest conveniences, will soon be installed in their midst. There are at least half-a-dozen such towns on the banks of the Hangchow river. For a distance of 60 miles from Hangchow, there is a steam-launch service twice daily, insur-

ing a constant stream to and fro of business people. —*Finance and Commerce.*

GOVERNMENT FINANCE

Japanese Domestic Loans, 1921.—The Finance Department estimates that the loans to be floated during 1921, will be Yen 17,000,000 less than 1920. The estimates provide for floating a total of Yen 168,439,000 in loans for the following purposes:—

Department of Communications ...	9,800,000
Telephone Construction	34,400,000
Korean Enterprises	21,576,000
Formosan "	9,027,000
Saghalien "	2,777,000
Government Railways	80,000,000
New Railway Construction	6,559,000
Road Building	4,300,000
Total	168,439,000

Japan's Gold Reserve.—On September 15, Japan's gold holdings amounted to Yen 1,996,000,000 an increase of Yen 13,000,000 since August 31, principally derived from remittances from the United States. The Bank of Japan's holdings reached Yen 1,108,000,000 an increase of Yen 17,000,000 since August 31, while the government holding dropped Yen 4,000,000 to a total of Yen 888,000,000. The gold held to the credit abroad decreased by Yen 4,000,000 to Yen 1,154,000,000 while the reserve held at home reached Yen 842,000,000. •

Successful Japanese Domestic Loans.—The Finance Department contemplates issuing a domestic loan for either Y.80,000,000 or Y.100,000,000. The loan issued by the South Manchuria Railway Company last month was a great success, in spite of the economic depression, and because of this the Treasury has decided to raise money in this way. A British loan for Y.50,000,000 which expires in January next will be redeemed at once.

Salt Revenue for Construction, China.—President Hsu of Peking is supporting the policy of using the surplus salt revenue solely for development and constructive purposes, which would leave the foreign powers no excuse for withholding it. Objections are coming in from provinces which maintain that they must have shares of the surplus for their administrative expenses.

Japanese Foreign Bonds.—Availing themselves of this favorable opportunity, when the exchange rate on European countries is rapidly advancing, the Japanese exchange banks are about to import foreign bonds on a large scale. The world-wide economic depression is steadily forcing down various kinds of foreign securities. During the war, many Japanese companies who had invited foreign subscriptions, were vigorously importing their own debentures at the unprecedentedly high rate of exchange, resulting in a large gain, and there are only two or three companies, including the South Manchuria Railway Company, who have not reduced their issues.

A Billion Dollar Budget.—In connection with the compilation of the Japanese Budget for the next fiscal year, various government departments have demanded increased expenses, some going to over 50 per cent., on the ground of the high cost of commodities. These estimates total 2,000 million yen. The Finance Ministry endeavoring to cut down the estimates, but will be unable to complete their huge task until the beginning of November, instead of the middle of October there-

fore the Cabinet will not be able to take up the next Budget until the middle of November.

Famine Relief Loans, China.—The government will provide 1,000,000 yuan, borrowed from the foreign and Chinese banks in Peking, as an emergency relief fund for famine sufferers, and a similar sum will be raised among the president, cabinet members, and tuchuns. The government is also considering permitting provinces suffering from famine conditions to issue temporary paper money to provide relief.

Japanese Internal Loan.—A syndicate of 21 Japanese banks headed by the Yokohama Specie Bank has underwritten an issue of Yen 80,000,000 five per cent. three-year Treasury Bonds, which was offered to the public on October 8 at 95.25. This issue is to cover the cost of the new telephone, telegraph and other enterprises authorized by the Diet. Another issue of Yen 20,000,000 in Treasury Notes to cover the cost of other enterprises will be made in November.

Retrenchment Read Backwards.—The restoration of the official system of the 1st year of the Republic has given the minister of finance a splendid chance for putting a large number of friends and proteges into his ministry, says the *Peking Daily News*. The names of twenty-eight candidates for the posts of experts, senior clerks, etc., have already been submitted to the bureau of civil appointment for recommendation, and another number of more than thirty lower grade officials have already been appointed by ministerial orders. As these newly appointed officials receive high salaries, the budget of the ministry will be seriously affected. Another number of more than fifty officials attached to the councillors and senior clerks' departments have also been given appointments of junior clerks, subject to the approval of the bureau of appointment. The decision of the ministry of finance has aroused serious opposition among those candidates in the ministry who have successfully passed high civil service examinations. They say that according to the regulations promulgated by the cabinet in 1916 providing that whenever there is a vacancy in any of the ministries or bureau preference should be given to candidates who have passed the civil service examinations and those who should obtain promotion on account of their seniority. They point out that sixteen of the senior clerks and compilers recommended by the minister are men who have no connection with the ministry. More than 100 officials of lower rank in the ministry who formerly successfully passed civil service examinations have approached the cabinet complaining of the actions of the ministry, and demanding that at least six of them should be promoted to the post of senior clerk, etc. They declare that should their protest be ignored by the cabinet, they would bring an action against the minister in the administrative court.

Opposition to 9th Year Domestic Loan.—The M. P's of both Houses who are still remaining in Peking have again raised strong opposition against the issue of the 9th Year Short Term Loan, in spite of the strong efforts on the part of the government to obtain their approval. They have circulated another telegram and sent out circular letters to the provinces pointing out the harm that the loan will do to the nation, etc. They have now addressed a despatch to the Diplomatic Corps in the name of Parliament, stating that the issue of the 9th Year Short Term Loan as promulgated by the Presidential Mandate of the 19th September, 1920, has not been approved by Parliament, hence a breach of the Constitution of the Nation. The M. P's state that since the loan constitutes a burden on the people, they can-

not acknowledge it as legal when the government refuses to consult the opinion of Parliament. They request the ministers of various legations to warn their respective nationals against it, lest they should incur financial losses, etc.—*Peking Daily News.*

BANKS

A New Russo-Japanese Bank.—The organization of a new bank with a capital of Yen 10,000,000 to finance commercial and industrial enterprises in Eastern Siberia is under way in Vladivostok. The shares are to be limited to Russian and Japanese investors and the Japanese government. In return for certain guarantees by the Japanese government, the Russian government will grant the Bank certain concessions. Japanese capitalists are expected to provide one-half the capital, the Japanese government Y.3,000,000, and the remaining Y.2,000,000 by Russian capitalists.

Sumitomo Bank.—This bank at its semi-annual meeting of shareholders on September 20, declared a dividend of ten per cent.

China Specie Bank.—The China Specie Bank is being organized at Hongkong by local Chinese businessmen. Mr. Wong Kwong-tin is the leading spirit in the new concern.

Specie Bank Opens Hamburg Branch.—The Yokohama Specie Bank has been conducting investigations into the state of German industrial affairs and has decided to establish a branch in Hamburg.

MERCANTILE FINANCE

Mitsubishi Mining Company.—The issue of new shares of this company to the extent of Y.50,000,000

has been successful and the first installments paid in. The authorized capital of the company is now Y.100,000,000.

Fuji Paper Manufacturing Company.—The directors will propose to the shareholders at an extraordinary meeting to be held on October 5, the raising of a loan of Y.5,000,000, which the Industrial Bank of Japan has promised to underwrite.

Tokyo Life Insurance Co.—The Tokyo Life Insurance Company will celebrate its tenth anniversary on October 4. The company announces that the total value of its policies has exceeded Y.100,000,000 within the ten years.

Japanese Cotton Yarn Loan Extended.—Mr. S. Suzuki, Vice-President of the Yokohama Specie Bank, recently visited Osaka in connection with the Y.40,000,000 loan to the Cotton Yarn Syndicate by the Yokohama Specie and other banks. This loan expired in the normal way on November 15 but on October 15 it was decided to continue it after that date.

Oriental Development Company.—A new bond issue of Y.5,000,000 of this company is being sold through the Kanda Bank of Tokyo and the Japan Trust Bank of Osaka. The bonds are offered at 96 bearing interest at 7½ per cent.

Hokkaido Railway and Steamship Loan.—The Railway Department will float a domestic loan in order to redeem at maturity the old sterling loan of 400,000 pounds incurred by the above company, whose properties were nationalized in January 1911.

New Capitalizations, Japan.—The Mitsu Bank has published a table of new capitalizations and

extensions in September. There was an aggregate of Y.180,157,500 in new capitalizations and of Y.174,799,000 in extensions. These figures, as compared with the prior month, showed an increase of Y.16,042,500 in the former and of Y.81,479,000 in the latter. Below are shown particulars:—

	New Capitalizations.	Extensions.
	(Y.1,000)	
Banking	598	56,700
Trusts	11,510	—
Spinning	5,200	—
Electric	13,540	22,375
Gas	—	—
Mining	9,900	—
Aquatic Product	—	—
Railways	20,000	46,000
Aerial	220	—
Warehousing	150	—
Manufacturing	150	—
Commerce, etc.	15,459	14,050

Japanese-American Trust Company Disowned.—The Gokoku Shintaku Kaisha, the Five Powers Guaranty Trust Company, an organization sponsored by General Kususe, formerly Minister of War, Mr. Kyuken Yamamoto and a number of foreigners and other Japanese, opened its doors for business in the Italian concession of Tientsin on September 21, the company being incorporated under the laws of the State of Delaware. The American Consul notified the company that he could not provide protection as it is not registered at the American Consulate. Mr. Funatsu, the Japanese Consul-General, also at first refused to recognize the company, but later, after investigating the circumstances, revoked this order. The American Consul's action was purely formal and

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MINES, MINERALS AND METALS

Japan's Copper Exports.—Since the organization of the Copper Refiners' Union in the latter part of June contracts have been entered into with merchants in England and in China for the shipments of Japanese copper to the amount of 7,000 and 3,000 tons respectively. The price of copper for London is fixed at from Y.41.80 to Y.43.00 per ton, while for China the price is fixed at Y.46 per ton. Recently new orders were received from Siberia for a supply of 6,000 tons of Japanese copper. Members of the Union, which include Kuhara & Co., Sumitomo & Co., and Furukawa & Co., are busy executing these orders.

Decline in Mining, Japan.—The *Asahi* says that, according to investigations made by the Osaka Mining Office, which has 18 prefectures, including Osaka-fu and Kyoto-fu, under its jurisdiction, that since the depression set in, the mines in Osaka-fu and Kyoto-fu have completely suspended operations. Okayama prefecture heads the list with 11 such mines, Kyoto-fu 3, Hyogo 5, Miye 3, Ishikawa 2, Fukui 1, Tottori 3, Shimane 4, Osaka 1, Shiga 1, Nara 2, Hiroshima 6, Ehime 2, Kochi 1, and Tokushima 2. At one time as many as 35,000 miners were working at mines in these prefectures, but now the number is reduced to 21,000.

New Coal Mining Company, Saghalien.—It is reported that with the object of increasing the output of coal and as a means of developing South Saghalien, the Japanese government contemplates establishing a mining company under the name of The Saghalien Mining Company with a capital of Y.10,000,000, in co-operation with business men interested in the scheme. In this connection we understand that the scheme is receiving enthusiastic support, owing to the fact that there are very rich deposits of coal in Saghalien.

Philippine Mining Opportunities.—The Philippine Islands are rich in mineral products. Nearly all the islands are known to contain deposits of economic minerals. Undeveloped prospects are waiting industrious pioneers to make them paying mines, and many regions which may bring forth more valuable deposits are still unexplored. The most important minerals are gold, silver, lead, zinc, copper, iron, coal, petroleum, sulphur, asphalt, asbestos, and manganese. The total value of mineral production amounted to \$117,046 in 1907. In 1917, just ten years later, the total figures had increased to G.\$3,015,225, and in 1918, to G.\$3,266,677.

Americans in Mongolia.—It is reported that a party of American mining engineers has arrived at Urga to examine into gold mines in Outer Mongolia. It is firmly believed in Japan that two American firms in Manchuria have a contract with the autonomous government of Outer Mongolia for the concession of gold mines.

Coal Production and Consumption in Japan.—A decrease in the exports of coal and coke from Japan since 1916 together with an increase in imports and also in production is significant of the industrial expansion of that country, says the *London and China Telegraph*. This increased demand is the cause of the prevailing high price of coal. Rising from 10 yen a long ton in 1916 to 22 yen in 1918, the price has continued to increase steadily, reaching 37 yen in March, 1920. Official estimates place the available coal deposits in coal veins over 2-ft. thick and at not more than 2,000-ft. below drainage level at 822,000,000 metric tons of

2,204 pounds. It is judged that 2,940,000 metric tons lie at greater depths and can be mined by highly efficient methods. Kyushu is estimated to have 75 per cent. of the available coal resources of Japan: Hokkaido, 10 per cent.; and Honshu (main island), Shikoku, Taiwan, Korea, and Karafuto, 15 per cent. The coal is bituminous with the exception of about 60,000,000 metric tons of anthracite in Kyushu and the Iwaki-Hitachi and Nagato districts. The consumption of coal in Japan for shipping, factory use, railway, and salt production increased from 14,924,437 metric tons in 1913 to approximately 19,000,000 metric tons in 1919. The production figures for 1911 show that 17,632,710 metric tons were mined, and this had increased to 30,832,325 metric tons in 1919. Imports of coal and coke into Japan increased during the year 1919, China and Kuangtung province being the chief sources of supply.

Minerals Output of Japan.—The output of minerals in Japan during last year amounted in value to Y.641,282,129. The figures show an increase of Y.127,188,457 as compared with the preceding year. The following table shows the value of the principal minerals output of last year:—

Gold	...	...	Y.9,678,848
Silver	...	...	11,131,055
Copper	...	...	67,501,475
Lead	...	...	1,592,843
Tin	...	...	2,335,554
Zinc	...	...	8,145,244
Iron	...	...	43,037,886
Coal	...	...	442,540,941
Oil	...	...	45,422,531
Sulphur	...	...	2,256,324

Asbestos Mining in China.—Asbestos is mined in Szechuan province of China from where it is shipped to Chungking at a cost of 75 cents per 100 pounds. In the Shensi province there is said to be a good mine, and also one near Paotingfu, but the transportation is very poor. Several asbestos mines are located in the vicinity of Peking; the fibers are said to be very brittle and the product is used locally. Although Tientsin in recent years has developed an export trade in asbestos prepared from the native product by a Chinese concern. China also imports considerable quantities of asbestos articles, such importations in 1918 being valued at \$148,837.

CONSTRUCTION

New Construction Company.—The Maru-ken Construction Company, Ltd., has been organized in Yayezu-machi, Shidzuoka Prefecture, with a capital of Y.50,000, to engage in iron and concrete construction work. The Managing-Director is Y. Iketani.

Fortress Construction, Japan.—A Fortress Reconstruction Commission of thirteen members has been created by the War Office. Lieutenant General Matsui, chief of the Fortification Section, is president and Colonel Furuta secretary.

New Tokyo City Hall.—The *Miyako Shim-bun*, commenting on the plans for a new municipal building, points out that there are many other works of greater importance that should be completed before incurring this expense.

Yokohama Municipal Construction.—The government has granted the municipality of Yokohama a loan of Y.457,500 bearing interest at 4.8 per cent. repayable in fifteen years, for the purpose of constructing 100 first class cottages at Sagiyama, Nigishi.

University to Erect Buildings at Foochow.—Opportunities for the sale of American steel for

reinforced concrete, plumbing supplies, and hardware are offered through the construction by the Fukien Christian University at Foochow of buildings and residences costing between \$2,000,000 and \$3,000,000, according to a recent report by Consul Ernest B. Price, of Foochow. This institution is maintained by American and British interests, and it is further reported that an American company has charge of the architectural works.—*Daily Commerce Reports*.

New Department Store, Osaka.—The new building for Osaka branch of the Mitsukoshi Department store was completed on September 28. The building is a new wing or East Hall, of ten stories from the foundation cellar to the top of the tower, built in the Renaissance style, covering 3,789 *tsubo* of floor space. Including the West Hall the total space is 6,500 *tsubo*, or 2,000 *tsubo* more than the Tokyo store. The supervising architect was Dr. T. Yokogawa.

New Reinforced Concrete School, Osaka.—3,960 *tsubo* of land has been purchased at Y.30 per *tsubo*, for the erection of the 12th Middle School of Osaka. The plans have been drawn for some time, and the construction department of Osaka-fu is now purchasing the structural steel and reinforcing materials. The building will be a two story reinforced concrete structure, and work will be commenced at once.

House and Land Companies in Difficulties.—The land companies floated in the suburbs of Osaka during the days of the boom are on the brink of bankruptcy. A project is on foot for their amalgamation with a capital of Y.100,000,000. The Korean and the Godo Land Companies will be the principal ones in the projected amalgamation.

New Hospital, Japan.—The Railway Department has completed its new hospital building at Akita, Akita Prefecture, and is now proceeding to fit up its operating rooms with the most modern improvements.

Municipal Hotel, Yokohama.—A movement for a municipally built and owned hotel in Yokohama is predicted by the *Asahi*, which says that the men who have been considering the building of a hotel there for some time have decided to endeavor to interest the city authorities in building and conducting one as a municipal endeavor.

New Government Steel Building, Tokyo.—It is announced that the plans for the new departmental building to be erected outside the Sakurada Gate of the Imperial Palace, will embrace the housing of the Home, Financial and Communication Departments, and that the building will be a steel frame structure along the lines of the Kaijo Office Building.

MACHINERY

Market for American Tractors in Formosa.—There are over 250,000 acres under sugar cultivation in Formosa and in recent trials the American tractor has proved successful on these plantations. There are probably over 30 Formosan companies for the growing of sugar with a capitalization of over Y.1,000,000 each and it is estimated that about Y.200,000,000 is devoted to sugar culture in the island. Favorable conditions in the industry in the past few years give opportunity for the sale of modern machinery. The successful use of the tractor began in the summer of 1919 and it is reported that there are 20 American tractors ranging in size up to 75 horsepower in use there at the present time.

New Packard Corporation Advertising Head.—Packard Motors Export Corporation, New York

City, announces the appointment of Paul D. Davis as advertising manager. Mr. Davis, who is a specialist in foreign advertising and sales promotion, has been export advertising manager of the Firestone Tire & Rubber Company for the last two years. The Packard export organization anticipates an increasing volume of business in world markets and coincident with the expansion of their sales organization, export advertising programs will be instituted on a comprehensive scale.

Garage Incorporates, Japan.—The Shidzuoka Automobile Shokai has been registered with a capital of Y.35,000.

Motor Cars Spoiling in Storage, Japan.—The *Asahi* says that a large number of motor cars, imported from America, are lying unclaimed in warehouses at Yokohama, Kobe and Osaka. In the Sumitomo warehouse at Chikko, Osaka, there are some 130 cars consigned to Japanese firm, which has gone into bankruptcy. Owing to the congestion of goods, the Sumitomo warehouse cannot afford to give them permanent accommodation, and consequently these cars are said to be exposed to the weather, being piled up in a spacious ground adjacent to the Chikko branch of the Osaka Water Police. It is conjectured that these cars will finally be disposed of by public tender.

Imperial Motor Cars.—Two motor cars for the Emperor and Empress of Japan, costing Y.50,000 each, are being manufactured in the shops of the Tokyo Gas and Electric Engineering Company.

New Taxi Company, Osaka.—Mr. Tsutsumi of Tokyo representing a

group of capitalists has applied to for permission to operate a taxi service in Osaka.

New Shanghai Taxi Company.—A new motor company, the Shanghai Taxi Co., Inc., has just started operations. It has a capital of \$50,000 all of which has been subscribed. Captain W. I. Eisler has been appointed president; Mr. J. S. Dolan, of the China and Java Export Co., vice-president; Mr. D. Haimovitch, of the Pacific Mercantile Co., treasurer; and Mr. H. V. Bernard, formerly of Fred. Large & Co., secretary.

ROADS

Sewer and Roads, Muroran.—The work of constructing and improving the road and sewer system of this city which has been held up for several years has been resumed and a plan adopted that will require six years to complete. A contract for 1920 has been awarded to Mr. T. Masago for \$61,000 upon which work will be immediately started.

New Road Chief.—Mr. Tertaro Hiraoka has been appointed to the supply department of the Tokyo Municipal Road Department, at a salary of Y.10,000 a year.

New Road Recommendations, Japan.—Dr. Makei of the Home Department who has been investigating the roads of the Tokkaido has reported that the most important roads which require improvements for automobile traffic are between Tokyo and Yokohama, Yokohama and Tsujisawa and thence to Yumoto and from Tonosawa to Mishima, thence to Okitsu, Shidzuoka and the Oi River. From Tokyo to Yokohama a width of 140-ft. is recommended while the other sections a width of from 35 to 45-ft. is proposed.

New Roads, Kanagawa-Ken.—At a recent meeting of the Kanagawa prefectural authorities it was decided to proceed at once with the construction of a road from Odawara to Ashigara. Five other roads will also be built by March, 1921.

Road Building, Toyama, Japan.—The Toyama Prefectural authorities have approved a plan for the repair and construction of twenty roads for the use of automobiles.

Tokyo Street Improvements.—With the appointment of Dr. Myoi as Chief of the Municipal Street Department, the definite plan for road improvement has been published.

Reconstruction of the Tokyo streets will be started at the beginning of November, to be completed in five years at a total cost of Y.50,000,000.

The roads to be rebuilt have an area of 950,000 *tsubo*. Of this, about 667,000 *tsubo* will be rebuilt with Tarvia, 147,000 *tsubo* with wooden blocks, and 16,000 *tsubo* with stone flags.

Road Improvement, Korea.—The Chambers of Commerce of Fusan and Taikyn have applied to the government for the improvement of the roads in their districts.

Roads, Siam.—Considerable attention has already been given to road making in connection with the new railway extensions in Siam and an American engineer has joined this service.

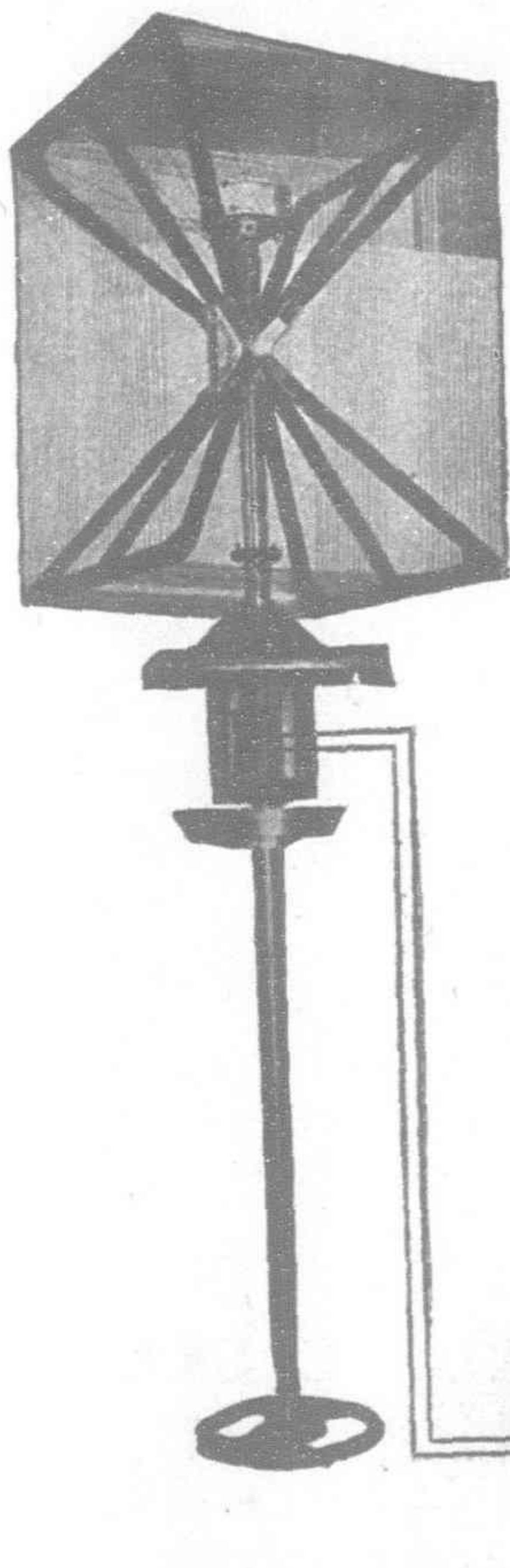
Roads, Shidzuoka Prefecture.—The Shidzuoka Prefectural authorities at their meeting of October 6, decided upon the construction of three new roads. As soon as the estimates are completed and funds appropriated, work will be commenced.

Initial Work on the New Tokkaido.—The Road Improvement Board has commenced the purchase of houses and their removal for the widening and improvement of the great highway between Tokyo and Yokohama, in order to provide work as soon as possible for large number of unemployed.

China to Build New Roads.—The Chinese government has been drawing up plans for a national road system in order to start public works for the relief of the famine sufferers in North China. It will employ forthwith 600,000 to 1,000,000 famine sufferers in the construction for three roads from Peking, extending over 1,000 *li*, at a cost of Y.2,000,000. The expenses will be defrayed from the Gabelle surplus and postal proceeds.

Municipal Gravel Plant, Tokyo.—The estimated cost of street gravel to be used in Tokyo during the next year is estimated at Y.252,000. During

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the last 12 months 352,000 cubic yards of gravel was used and an equal amount will be needed during the next year.

The present price of gravel is Y.60 a cubic *tsubo* (16 cubic yards) but the supply is limited and for this reason the city is planning to buy out the Tamagawa Gravel Company and operate it for municipal requirements.

SHIPBUILDING

Railway Car Ferry Boats, Japan.—Contracts have been signed by the Railway Department for the construction of five wooden railway ferry boats to be employed to transport cars across the Inland Sea between the Main line and the Shikoku branches. Each boat will carry three passenger coaches, or several freight cars.

Asano Dockyard.—The Asano Dockyard at Tsurumi has discharged about one-half of its workmen on account of the falling off in construction orders.

Shipbuilding Course, Kyushu University.—The Educational Department has announced that a shipbuilding course will be opened for students at the Kyushu Imperial University, commencing April, 1921.

New Turbine Ferry Steamer.—Mr. Tsuda of the Railway Department who has recently returned from a trip through Korea is authority for the statement that it is planned to construct a new ferry steamer for the Shimonoseki-Fusan service of 4,000 tons with turbine engines, and to have a speed of 17 knots. It is said that the work will go to the Mitsubishi Dockyard.

Railway Goods Ferry, Japan.—In view of the damage to railway freight transferred between Takamatsu and Unc (Shikoku), the Railway authorities will build steam vessels to supplant the present small sailing boats employed in this traffic.

New Japanese Navy Bureaus.—The conditions arising out of the completion of the Naval program necessitate a reform of the naval organization, says the Tokyo *Asahi*, quoting certain naval authorities.

Three new bureaus will be established, the Naval Armament, Construction Headquarters, the Naval Munitions Bureau, and the Headquarters of Naval Architecture.

The Armament Bureau was abolished at the time of the naval scandal and its functions taken over by the Naval Department. The growth of the Navy necessitates the reestablishment of this bureau.

The work of the Naval Munitions and Architecture bureaus has also been controlled by the Navy

Office, but the completion of the naval expansion program demands the establishment of an independent institution for the dispatch of such business.

The estimates will be introduced in the coming session of the Diet, while the *personnel* for each institution will be appointed in the near future.

Yokohama Dockyard Extension.—In order to undertake the construction of large war vessels the plant of the Yokohama Dockyard is to be greatly expanded, so as to offer the same facilities as the Mitsubishi and Kawasaki yards. Preliminary to placing important government orders with this concern the plant was recently inspected by a board of high naval officials. At present the Yokohama Dockyard has five building slips and employs about 8,000 men, its annual capacity for building merchantmen being between 100,000 and 120,000 tons. It is understood that the company will increase its capital to expand its plant, which at present is only able to construct destroyers, gunboats, or yachts, and if cruisers and battleships are to be built, its equipment must be greatly extended. At the present moment the Yokohama Dockyard Company is building or fitting out five passenger steamers of 10,000 tons each and an ice-breaker of 3,000 tons, both ordered by the Nippon Yusen Kaisha, the tanker *Sata* of 10,000 tons ordered by the Navy Department, and two freighters for the company itself. Of these ships, a passenger vessel of 10,000 tons was recently launched, while another of the same type is to be launched on November 23, and the tanker is due to be launched on October 28.

Increase in Shipbuilding Costs, Japan.—Along with the rise in the price of all commodities, the cost of building warships has increased, to the extent that the Navy Department has asked for an increase of 50 per cent. in expenditure in the forty-first session of the Diet and 80 per cent. in the forty-third session. As a result, it is said that the Kawasaki and Mitsubishi Shipyards will suffer considerable losses if the contract price is not increased. The naval authorities are bound by the appropriation, and as there is no legal way in which the contract price can be increased, the matter is causing trouble. The increase in the cost of construction is particularly large, in regard to submarines, and it is reported that as a means of solving the problem the authorities will grant Y.500,000 extra for future submarines orders.

Japanese Naval Construction.—The Navy Department has placed the following construction contracts in accordance with the recent approval of the Diet to the new "eight and eight" program: Cruisers: The *Ayase* and *Yura* to be built at the Saseho Navy Yard; *Minase*, at the Uraga Dockyard and the *Otonase*, at the Mitsubishi Works; First Class Destroyers: *Mokaze*, *Tsumujikaze*, and *Okaze*, at the Maidzuru Navy Yard;

Numakaze, at the Uraga Dockyard; *Namikaze*, *Suzukaze*, and the *Soyokaze* at the Mitsubishi Works; Second Class Destroyers: *Hagi*, *Hishi*, *Kasu*, *Ayame* and *Botan* at the Uraga Dockyard; *Tsuta*, *Ashi*, *Mikyo*, *Karukaya* and the *Yuri* at the Kawasaki Dockyard; *Sumire*, *Yoyogi*, *Kakitsubata*, *Tsutsuji*, *Kaido* and the *Bashi* at the Ishikawajima Shipyard; *Warabi*, *Tade*, *Ajisai*, *Shion* and the *Nadeshiko* at the Fujinagata Shipyards.

New Shipbuilding Slips, Sasebo.—The Navy Department will enlarge the building capacity of the Sasebo Navy Yard by adding two new slips to accommodate the construction of 10,000-ton cruisers. The present slips are only large enough for the construction of 5,500-ton vessels.

SHIPS

Cunard Line to Open Oriental Route.—According to a report of the Japanese Consul-General at Vancouver to the Japanese Foreign Office, the Cunard Line will open its Oriental route from January, next year. Three fast passenger steamers will be used for regular service between Vancouver and Oriental ports. The route will establish connection with the Canadian national railway.

Steam Navigation on Upper Yangtze.—The year 1920 has seen an increase in American shipping on the Upper Yangtze River between the ports of Ichang and Chungking. Navigation on the Upper Yangtze, due to the numerous rapids, is very difficult, and as steamers are able to operate but six or seven months in the year, from April to the end of October, the steamships on the run have found the carrying trade very profitable. Three steamers, the *Meichuan*, *Meitan* and *Anlan*, are operated by oil companies principally for the purpose of bringing oil in bulk and tins from Ichang to Chungking, but they carry general cargo on the down trip. The other steamers are general cargo steamers, and all have passenger accommodations. The passenger rates are exceedingly high for a journey of only 350 miles, \$120 in local currency or approximately \$125 in United States currency being charged per person for first-class accommodation, and passengers are required to pay an extra charge of \$3 per diem for meals and \$0.06 per pound for baggage. The Yangtze Transport and Supply Corporation, an American concern, operate a steam vessel of 350 tons burden and a speed of 13 knots. An American shipping firm will maintain offices in Chungking and Ichang under the supervision of well-known local Chinese. It is reported that this company intends to extend its services as soon as

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more vessels can be obtained. Vessels for the Upper Yangtze are of a peculiar construction and especially designed.—*Daily Commerce Reports.*

TELEGRAPHS, CABLES, WIRELESS, ETC.

Increased Market for Marine Wireless Plants.—The British Mercantile Marine Regulations providing that all vessels of more than 1,500 tons sailing from British ports shall be equipped with wireless telegraphy, is expected to be revived within a month or so. This will affect many of the Japanese steamers, as only the subsidized vessels are so equipped. In the fleet of 50 vessels owned by the Kokusai Kisen Kaisha, only three have wireless installations.

Responsibility for Phone Hold Up?—In reference to the story that eight million worth of long-distance telephone equipment said to have been ordered by the former Anfu Ministry of Communications is being held by the Maritime Customs in Shanghai because of refusal of the present government to receive delivery, says the *Peking Leader*, the Japanese Legation there has instructed the Japanese Consul-General in Shanghai to find out if the equipment is actually in Shanghai. The Consul-General reports to the Legation there that he inquired of the Commissioner of Customs in Shanghai as to whether the Customs had the material in their possession. The Commissioner, he says, made light of the idea, and denied he was holding such material. It is stated by a Japanese business man in Peking that a large quantity of telephone equipment such as that called for by the Anfu-Japanese agreement has already safely arrived in Peking.

New Telephones, Japan.—The authorities are considering the installation of a large amount of new telephones as a result of the demand for better facilities. Over 430,000 applications for telephones have been received by the Department of Communications, and the authorities intend to expend Y.37,000,000 in new installations and in laying 50,000 more miles of telephone wires in the country.

New Telephones, Yokohama.—The building of the old German Club will be demolished, and a three-storied concrete building telephone exchange erected on the site.

The work of construction will be started in November or December and completed towards the end of next year. It is also stated that the work of laying a direct telephone wire between Yokohama and Osaka will be completed two months hence. The number of telephone apparatus now installed in Yokohama is 7,500, the figures showing a decrease of over 3,000 as compared with the number in Kobe. Up to the present the authorities have received some 5,000 applications for the installation of telephones, and they are now making preparations to meet this demand.

Official Telephone Construction Bureau.—The Japanese Department of Communications has announced the creation of a separate bureau to handle the construction of telephone and telegraph and the improvement of the two services.

New Telephones, Sapporo.—Over 1,800 applications have been made for new telephones in the city of Sapporo, but the government has made

provision for the installation of only 140 phones for 1920.

PORT WORKS, DREDGING, DOCKS, ETC.

Kobe Harbor Works Extension.—The first stage of the new Kobe Port improvements has been completed at a cost of Y.23,000,000 and as the trade of the port is increasing rapidly, the second stage of the program will be undertaken at once as a joint enterprise of the Home and Finance Departments.

Takamatsu Harbor Works.—The plans for the improvement of Takamatsu Harbor are an official secret, but it is given out that a reclamation scheme covering 180,000 *tsubo* raising the land level from 9 to 20-ft. protected by a straight breakwater from the mouth of the Somaba River is to be carried out at an estimated cost of Y.3,000,000.

Submarine Dock, Kure.—A submarine dock is being constructed at the Kure Navy Yard 450-ft. in length, and in testing its strength by iron weights it broke down, causing considerable damage to nearby boats.

River Conservancy, Japan.—The embankments of the Misaki and Masuno Rivers in Kochi Prefecture, destroyed by the flood of August 15, are to be repaired, the former for a length of over 22,000-ft., at a cost of Y.191,000, and the latter for a length of 17,500-ft. at a cost of Y.147,000.

River Improvement, Osaka.—The original estimates and appropriations for the improvement of the Yodo River, Osaka (Y.5,760,000) are not sufficient to carry out the work under the present increased costs of materials and the government has been requested to aid in this work and increase the taxes accordingly.

New River Dredgers.—The Nishizaki Works of the Fujita Company, has completed two suction dredges for the reclamation work of the Kizu River. The dredges are fitted with electrically driven pumps operated by current supplied by the Ujikawa Hydro-Electric Company.

New Reclamation Company.—The Tokyo Bay and Land Company, Ltd., has been registered with a capital of Y.5,000,000 divided into 500,000 shares of Y.50 each with \$12.50 paid up. The objects of the company are the reclamation of the Tokyo water front, the erection of buildings, warehouses, etc. The head office is located at No. 1 Yariyacho, Kyobashi-ku, Tokyo, and the managing-director is a Mr. Ota. Among the Directors appear the names of R. Imanishi, Baron K. Okura and Z. Imai.

Shimizu Harbor Works, Japan.—Plans for the improvement of Shimizu Harbor have been approved. They call for the expenditure of Y.5,000,000 over a period of five years. A breakwater 3,000-ft. long and 30-ft. deep is to be built and the harbor dredged to provide anchorage for four 10,000 vessels.

Big Salvage Job.—The Nagasaki prefectural government has awarded to Mr. S. Tanaka, of Hokiji-cho, Nagasaki, the contract for the raising and refloating of two of the Russian war-ships sunk in the Korean Channel at the battle of Tsushima. Six competitors bid for the work. The successful bidder has already expended over \$5,000 in preliminary investigations.

New Port Works, Tokyo.—The plans for this great work were again under discussion at a re-

cent meeting of the Municipal Council. Mr. Tamura, Chief Municipal Engineer, outlined the scope of the work as embracing 9,860,00 *tsubo* with a surrounding breakwater 50,000-ft. long, with the necessary roads, railway yards, warehouses, etc., calling for an additional reclamation of 8,500,000 *tsubo* of land. The plans call for an expenditure of Y.350,000,000 spread over a total period of twenty years, and construction periods of five years, the first period calling for an outlay of Y.50,000,000.

Tokyo Reclamation Scheme.—Mr. Jikuro Kado and Baron K. Okura, representing the Tokyo Bay and Land Company, Ltd., have applied to the Prefectural authorities for a permit to proceed with their scheme for the reclamation of the bay shore from Sunamura to Susaki covering a total area of 1,554,000 *tsubo*. The construction cost is estimated at Y.27,716,000, spread over a period of ten years from the time of receiving permission. The average height of the reclaimed land above the high water level will be 12-ft. The plans embrace a canal 225 to 450-ft. in width, a breakwater 22-ft. wide and 13,200-ft long, enclosing a harbor of 528,000 *tsubo*, with wharves and warehouses.

Kure Port Works.—As the Kure Naval Port is too small as compared with the other naval station, the government has drawn up a plan for its enlargement covering a period of seven years and entailing an expenditure of Y.120,000,000. Mr. Hoshino and Mr. Yanashita have been appointed chief engineers for the execution of this plan.

WATERWORKS AND IRRIGATION

Ryusan Waterworks, Korea.—It has been decided to construct the water supply system for Ryusan, and a dam reaching from the Ryusan Station to behind the government building in Seoul, is planned at a cost of Y.510,000, the estimates for which will be presented to the government council in the 1921 budget.

Water-Power Development.—The New Zealand government public-works policy contemplates very extensive hydroelectric-power developments. The Minister for Public Works has stated that money will be provided for extensive hydroelectric schemes.

Kirin Waterworks.—Plans are under way for the construction of extensive waterworks at Kirin, Manchuria.

PUBLIC WORKS

Municipal Improvements, Kobe.—The Municipal authorities of Kobe may send, in the near future, a commission of experts to Hongkong to make a thorough study of the municipal improvements and plants, with the idea of applying the same to improvements of Kobe.

BRIDGES

New Bridges for Tokyo.—The Tokyo municipal government will expend Y.500,000 for bridge material and another Y.500,000 for construction during 1920, on the following bridges: Asakawa Bridge, Horikiri Bridge, Horikiri-ko, Komatsu and the Yotsugi bridge over the Ayose River. Plans are being prepared for the construction of

four additional bridges at an expense of Y.1,600,000 to be built during the next two years.

New Bridge, Hokkaido.—Engineer Harada, who has been surveying in Shiribetsu province, Hokkaido, is authority for the statement that the new road bridges for the province have been decided upon and work will commence early in 1920 on the big bridge over the Shiribetsu River.

New Steel Bridge, Hokkaido.—A new steel and concrete bridge over the Teshio River about 600 feet long is to be erected near Kamikawa at a cost of Y.80,000. It is expected to be completed by March 1921. The bridge is being erected by the Prefectural authorities.

New Railway Bridge, Japan.—A new bridge over the Arakawa River between Kitasenju and Kameari, is to be built at a cost of Y.2,500,000. The foundations were recently completed.

To Rebuild Amur River Bridge.—A special conference is to be summoned early in October in Vladivostok for the purpose of organizing direct communications between Vladivostok and Verkhne-Udinsk, says a Reuter dispatch from Vladivostok. Mr. P. S. Beresniak, of the Executive Communications Bureau, will preside. There will be delegates from the Amur Railway, the Usuri Railway, the Chinese Eastern Railway and the Za-Baikal Railway.

The first step to be taken in order to establish traffic is to reconstruct the railway bridge over the Amur near Habarovsk. This railway bridge is the biggest of its kind in the world.

New Street Bridge, Yokohama.—The Municipal authorities have decided to erect a new tramway, vehicle and foot bridge to be called the Yamashitabashi, over the Nakamura River, to replace the present one used exclusively by the tramway. An appropriation of Yen 49,000 has been set aside for this purpose.

TRAMWAYS

Gasoline Tramway, Japan.—The Isahaya Gasoline Railway Company has been granted a charter to construct and operate a tramway in Nagasaki Prefecture.

New Tramway Completed, Hokkaido.—The Sutsu Tramway Company has completed the line between Sutsu and Kuromatsunai in Hokkaido. It will be opened to traffic on November 24.

New Tramway, Shidzuoka.—The Akiha Tramway Company will change their omnibus service into a tramway operating between Tsukurai and Moraiwachi in Shidzuoka Prefecture.

New Tramways, Japan.—The Railway Department has granted permission for the construction and operation of the following new tramways:—Towada Railway Company, Ltd., capitalized at Yen 300,000 to operate a steam railway 9.23 miles in length between Rokutamura and Sanbongi-machi, Aomori Prefecture; Ikowa Maiman Electric Tramway Company, Ltd., capitalized at Yen 200,000 to operate a line of 9.55 miles in length between Ikowamura and Maimanmura in Osaka Prefecture; Nerihaya Tramway Company, Ltd., capitalized at Yen 500,000, to operate a steam railway line 7.16 miles in length between Kita Nerihaya and Yuemura, Nagasaki Prefecture.

Tokyo Subway.—On August 19, the Tokyo Subway Co. was successfully organized with a capitalization of Y.10,000,000.

New Tramway Company, Hokkaido.—The Home and Communications Department have granted

permission to Mr. Itaya and others promoting the Saru Tramway Company, Ltd., with a capital of Yen 150,000, to construct and operate a tramway between Saru and Hiratori in Hokkaido.

Peking Tramways Opposed.—The Peking gentry have petitioned the President and the ministry of the interior, saying they have heard that a foreign concession to construct tramcars has been granted and the rails are to be laid down next year. They point out that there is a large population in Peking maintaining itself by pulling rickshas, and that its maintenance will be taken from it by the construction of the tramline. The elders request that the government make provision for the livelihood of the ricksha coolies before allowing the tramlines contract.

Municipalization of Yokohama Tramways.—The purchase price for the municipalization of the Yokohama tramways has been fixed at Y.6,200,000, and Municipal bonds at 90 and bearing 7 per cent. interest will be issued. Formal announcement will be made upon the exchange of contracts.

Yokohama Tramways.—Negotiations for the municipalization of the Yokohama tramways are progressing. The Mayor has offered Y.6,800,000, while the Company's representatives asked Y.7,800,000. It is anticipated that the negotiations will be concluded shortly.

Shanghai Tramways.—Traffic return of the Shanghai Tramways (Foreign Settlement) for the month of September, 1920, and for 9 months ended 30th September, 1920, with figures for the corresponding periods of 1919, is as follows:—

	Sept., 1920.
Gross Receipts	\$220,379.35
Loss by currency depreciation...	59,621.46
Effective Receipts	Mex. \$160,757.89
Percentage of loss by currency depreciation	28.42
Car Miles run	416,055
Passengers Carried	9,960,809

	9 Months ended 30th Sept., 1920.
Gross Receipts	\$1,513,265.21
Loss by currency depreciation...	375,661.66
Effective Receipts	Mex. \$1,137,603.55
Percentage of loss by currency depreciation	26.05
Car Miles run	3,355,940
Passengers Carried	68,953,404

	Sept., 1919.
Gross Receipts	\$186,210.75
Loss by currency depreciation...	47,364.88
Effective Receipts	Mex. \$138,845.87
Percentage of loss by currency depreciation	26.66
Car Miles run	395,785
Passengers Carried	8,564,820

	9 Months ended 30th Sept., 1919.
Gross Receipts	\$1,812,081.90
Loss by currency depreciation...	475,412.01
Effective Receipts	Mex. \$1,336,669.89
Percentage of loss by currency depreciation	27.58
Car Miles run	3,618,805
Passengers Carried	81,095,003

Rich Saghalien Oil Fields.—The Hokushin-kai, representing the Nippon Petroleum, the Okura, Mitsui and Kuhara Companies, has been prospect-

ing for oil in Russian Saghalien and as the result fields of inexhaustible resources have been discovered at a dozen places.

Japanese Filing Oil Claims.—The Japanese mining bureau received 1,160 applications during the first six months of the present year for oil concessions against 650 for the corresponding period last year. The production of gasoline during the first six months of the present year is reported by the Nagaoka Mining Association to have reached 66,502 koku.

Oil Company Shuts Down, Japan.—The Japan Oil Co. at Hiranuma, Yokohama, having a capital of Y.2,000,000, has announced its intention to close down until further notice.

Oil-Drilling in China.—Reuter says it is semi-officially reported that an Anglo-Chinese company has secured the sanction of Peking for oil-drilling operations in Hsingkiang.

New Oil Well at Kosenpo, Formosa.—A new oil well at Kosenpo, 1,800 feet deep, is producing at the rate of 1,700 gallons per day. Several feet of oil-bearing shale established the belief that the newly found store of oil will not soon be exhausted. This enterprise is promoted by the Japanese Navy, in line with its decision to equip its new type of destroyers and light cruisers to burn either coal or heavy oil.

Far Eastern Kerosene Trade.—The Far East continues to depend on the United States for greater part of its kerosene supplies. American oil companies dominate the Far Eastern kerosene markets largely as a result of their having adequate supplies of crude oil to draw from. The California oil fields produce 101,000,000 barrels yearly, which is three times the production of the three principal Far Eastern fields combined. Exports of kerosene from the United States to the Far East in the year ended June 30, 1920, were 310,500,000 gallons. China received more than 150,000,000 gallons, or about 50 per cent. of the total.

AVIATION

Chang Tso-lin to Establish Aviation School.—Altogether 12 aeroplanes and 16 balloons were brought from Peking to Mukden by General Chang Tso-lin. It is now decided that an aviation school shall be established at Mukden, capable of accommodating 50 students.

Aerial Mail to Bonin Islands.—A regular air-mail service will be started in the near future between Tokyo and the Bonin Islands, in order to ensure prompt communication. Mr. Isobe, a civilian aviator, will make the preliminary investigations necessary for the establishment of landing places.

Japanese Aerial Mail.—Investigations and studies are being carried out for the opening of permanent aerial air services throughout Japan, which are expected to be completed some time in the next few months. The initial flights and studies are being carried out by the Imperial Aviation Society preparatory to the taking over of the routes by the Department of Communications. Mr. Oyamada, an official of this department, has been abroad to study the methods of other nations and is expected to return shortly. The first route will be opened between Tokyo and Osaka, and the service then extended to Kyushu and Shikoku.

Long Distance Flight Contest, Japan.—The Imperial Aviation Society is preparing for a long distance flight contest to be held early next year, while another race is planned for October. The

contestants in the big race will start from the military training camp at Mito in Ibariki prefecture and fly to Fukushima, Sendai, Morioka, Aomori and round to Horosaki. A first prize of Yen 30,000 and another of Yen 20,000 will go to the winners. The Emperor has made the society a present of Yen 500,000 and many wealthy people have made contributions, but more money is required by the society to carry out its educational work.

COMMERCIAL

Japanese Wine Export.—R. Kondo & Company, the largest manufacturer of port wine in Japan, has decided to enter the foreign field with their wine. This is the first time a Japanese wine manufacturer has endeavored to sell his produce abroad in competition with other wines. The Kondo Company has been selling 350,000 dozen bottles of wine in Japan each year. The Japanese product sells much cheaper than that manufactured abroad, and many are of the opinion that this decision will mark the beginning of a new and profitable export business for Japan.

Japanese Match Exports.—The export of matches from Kobe and Osaka for the month of July amounted to 26,108 boxes, an increase of 1,215 boxes over the preceding month. Exports classified according to destination is as follows:—

Shanghai	2,142 boxes
Hongkong	6,420 „
Rangoon	885 „
Bombay	966 „
Siam	100 „
Tientsin	267 „
American Colonies	1,613 „
Formosa	1,208 „
Fuchien Province	1,494 „
Singapore	450 „

Calcutta	3,656 boxes
Java	3,945 „
Tsingtao	300 „
Dairen	202 „
Korea	1,862 „
Other Countries	598 „

Caustic Soda in Japan.—The Osaka *Jiji* expresses the fear that the caustic soda industry in Japan may be ruined in the near future. This fear is based on the fact that Japanese manufacturers cannot compete with American manufacturers either technically or economically. During the European war this particular line of industry attained remarkable development, but this was only temporary. The manufacturing cost in Japan amounts to 13 to 15 sen per lb. but in the United States the expenditure is much less, for even after paying the Customs import duty, American soda is sold at 9 or 10 sen per lb. on the Japanese market. Investigations made show that during the war the output in Japan amounted to 10,271 tons annually, but inferior in quality and higher in price as compared with the American goods. Naturally the import of American soda is gradually increasing each year. For instance, the import of the American article in 1912 was 23,048,000 lbs., but in 1919 the figures increased to 80,119,736 lbs. Since the return of peace various factories in Japan have reduced the output of caustic soda, and in July this year the output by 12 companies was only 700 tons.

Japan's Timber Trade.—Timber amounting to Y.23,996,215 was exported from Japan to different foreign countries during last year against Y.10,888,941 worth timber imported from America and other countries during the same year, the exports to the extent of Y.13,106,274. Compared with the previous figures, exports show an increase of Y.6,191,290 but import a decrease of Y.1,316,000, the excess of exports also being an increase of

Y.7,507,290. Principal destinations of the exports and value thereof for last year are as follows:

Export	Value
China	Y.9,431,243
Kuangtung	3,811,020
Straits Settlements	3,609,623
British India	2,070,538
England	1,230,230
Australia	1,194,740
Netherland Indies	1,035,801

The value of imports during the same year is as follows:

Imports	Value
U. S. A.	Y.4,123,341
China	2,772,065
Asiatic Russia	2,111,727

Paper Output, Japan.—Last year the total output of Japanese foreign style paper amounted to 270,000 tons, of which 168,000 tons were consumed in the country, for the following purposes:

Printing paper	8,000 tons
Cigarettes	1,500 „
Text books for elementary schools	7,000 „
Note-books for elementary schools	3,000 „
Periodicals and magazines	16,000 „
Match boxes	7,000 „
Wrapping paper	17,000 „
Post-cards	3,000 „

Export of Mats and Matting from Hongkong.—

The total exports of mats and mattings from Hongkong in 1919 were valued at \$2,585,326, which represents an increase of \$699,079 over the previous year. Japan took 72 per cent. of these exports in 1919, as compared with 25 per cent. in 1918. Great Britain, the Netherlands, and Belgium came into the market for considerable purchases during the latter part of 1919, while a notable part of the trade went to other parts of the Far East, especially Siam and Indo-China.

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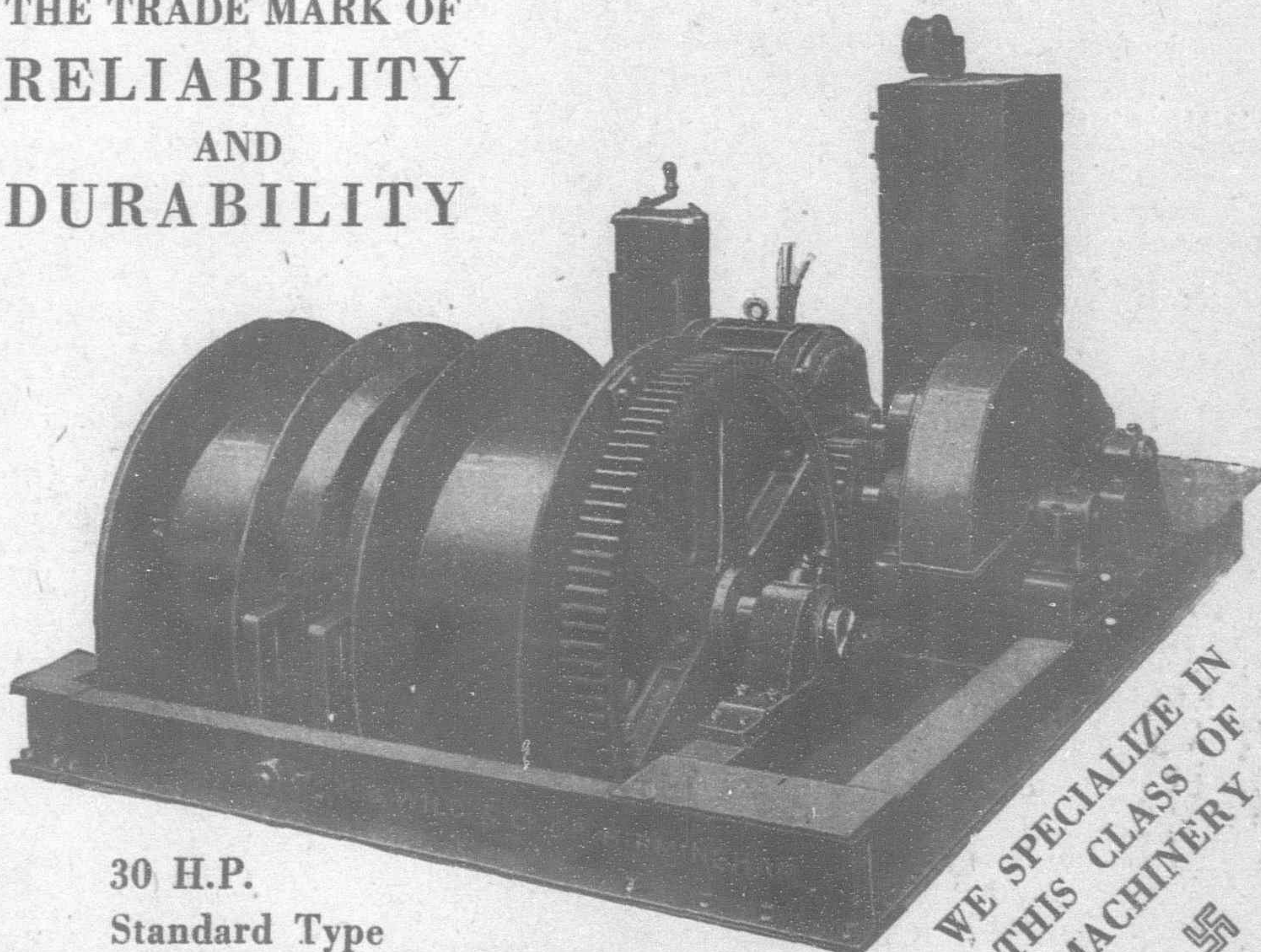
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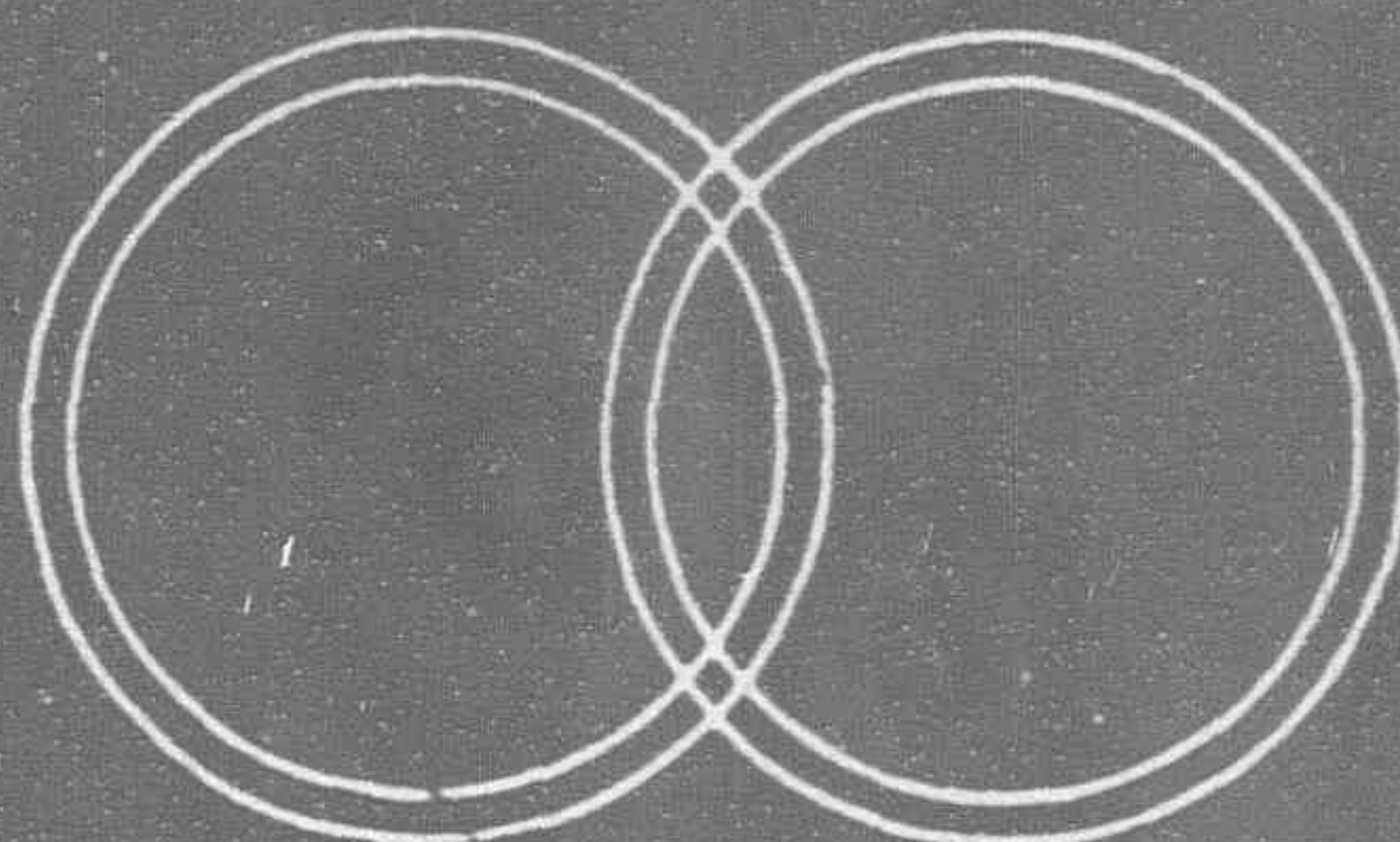
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